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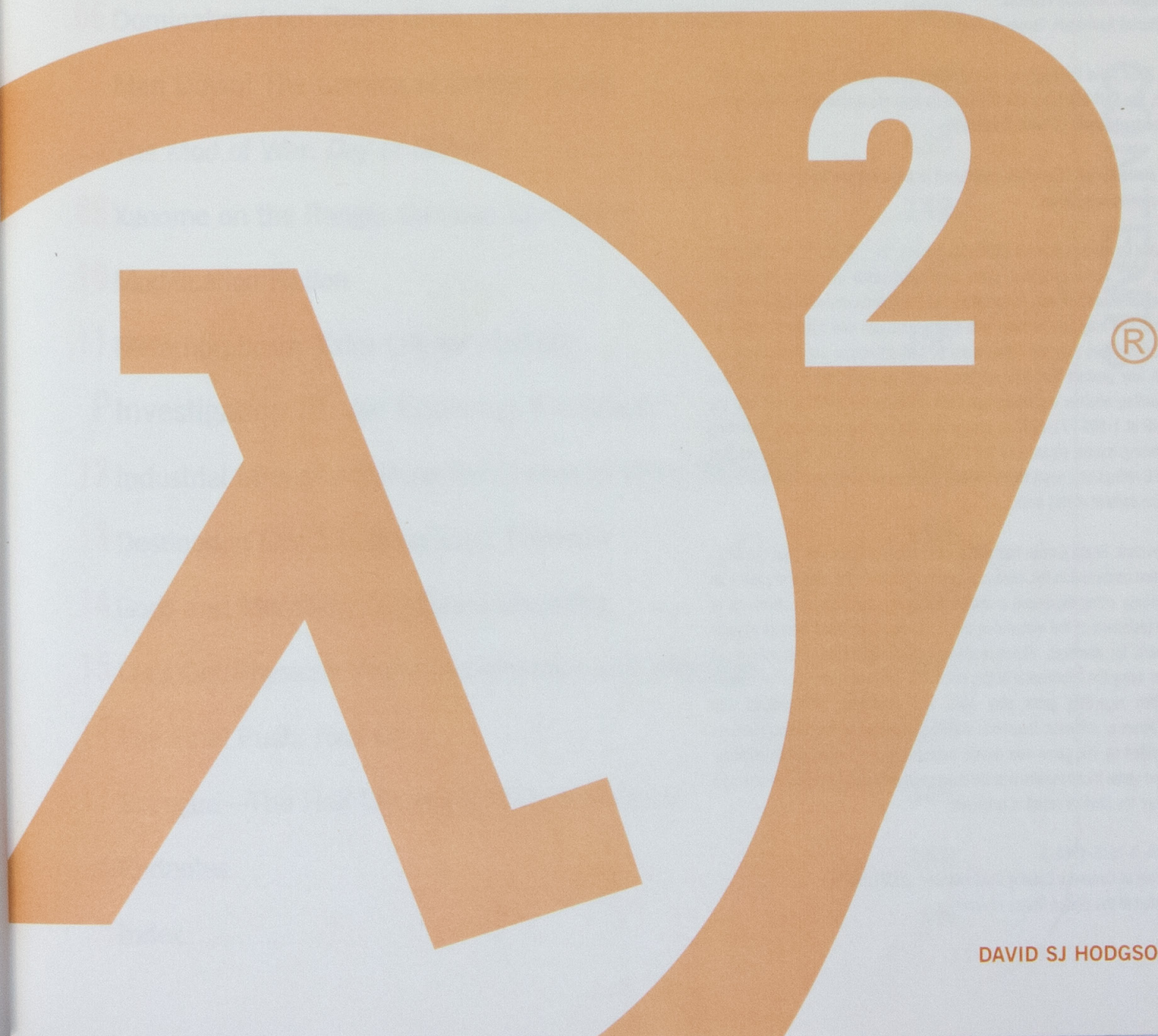


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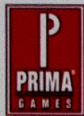
RAISING THE BAR



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►► FOREWORD BY GABE NEWELL

As I write this, I have the world's worst case of stage fright. After six years and tens of millions of dollars, after break-ins and lawsuits, after marriages and children and divorces and deaths, we're about to ship *Half-Life 2*. You, the reader, know how the launch of *Half-Life 2* went. You have read the reviews, seen the sales figures, heard about awards (or the lack thereof), and best of all, you've played the finished game. We've done none of these. Did we create a worthy successor to *Half-Life*? Did we live up to gamer's expectations? *Did we pull it off?* You know, and I don't, and that seems terribly unfair to me right now.

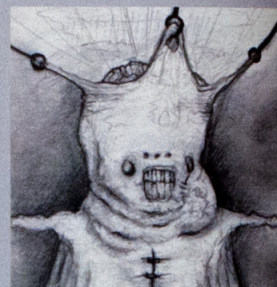
What also seems terribly unfair to me is the disproportionate credit I receive for Valve's success. I am part of a team, and part of what I do is act as a public face for the corporation (for example, writing forewords). One thing I hope you take away from this book is a clearer sense of just how much work is involved, how much creativity is required to build a game. There may be some games that are created by *auteurs*, a single driving vision surrounded by an army of obedient servants, but I don't think a game like *Half-Life 2* can be created that way. For anyone on the team, I can list all of the things that would have been lost if they hadn't been part of the creation of the game. There is a myth that gets told about the solitary writer, the autocratic director, the Napoleonic CEO that just doesn't ring true to me anymore having been part of the collaborative process at Valve.

We are also part of the larger game community. One of the unique characteristics of games as a medium is that you have to create it in cooperation with the audience. A multiplayer game is only as fun as the other people you are playing with. A single-player game is really a movie that you create in cooperation with the player where the lead actor doesn't have a copy of the script. A game engine is not just the platform for the game itself, but a platform for all the MODs that come along to extend the life and enjoyment of the experience. While you'll see little evidence of this larger community in *The Making of Half-Life 2*, be aware that everyone at Valve is acutely aware of our role in that larger community, the contributions that community makes to the success of our endeavors, and our deep gratitude for their support over the years.

Gabe Newell

8.11.04

Bellevue, Washington



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Investigation 1: An Intractable Rebirth



In which the origins of Valve are traced from the company inception to the licensing of Quake technology. Development on the initial version of Half-Life—Codename: Quiver—is uncovered, as well as the assembling of key team members. The reasoning behind the decision to eliminate the original (and almost finished) offering is explored, and the complete reworking into what eventually became Half-Life is depicted. Welcome to An Intractable Rebirth.



A New Handle on Software Development

01

“If you find a small group of people that you can work with that closely,
and no one gets murdered, then you’ve got something.
Although it felt like boot camp. It really did.”
—Steve Bond

►► Gabe Newell didn't know what he was doing. A senior program manager inside one of Microsoft Corporation's many concrete-and-glass slab buildings dotted around the Seattle countryside, Newell describes Microsoft's origins and work in the 1980s as "a very different place in the beginning than what it has subsequently turned into." Running program management for the first three releases of Windows, Gabe freely admits "we really didn't know what we were doing, but we were conscious of the fact that we didn't know what we were doing." The minutia of marketing and pricing the operating system were Gabe's main conundrums: "We were always trying to figure out the right way to do things. Like pricing. How do you price Windows?"¹ In a constant state of flux, Gabe knew there was one problem area where he was determined to make a difference.

Gabe had a pioneering belief that gaming would be a huge part of the PC future, that it was shortsighted to think that the PC was *not* going to become a jack-of-all-trades device. "I wanted to work on making PCs better for entertainment. At the time, back in the mid-'80s, nobody was thinking a lot about that." Instead, Microsoft spent most of its resources "worrying about PCs for spreadsheets. This was pre-internet, pre-bulletin board, forecasts where if you were lucky, 10 percent of all computers were connected to LANs [local area networks]. So, now it seems like a silly thing to think about, but the more I dug into it, the more I couldn't understand why PCs weren't being viewed as a replacement for traditional consumer electronics." Some at Microsoft chanted the mantra of *Encarta*: "We are going to popularize PCs in the homes through CD-ROM-based information products like *Encarta*—the PC as an encyclopedia. Or the PC as a dictionary." Gabe wasn't sold on that idea: "I thought that was really stupid."²

Early sketch art for *Prospero*; in this case a character named Aleph with orb-based powers.



ID SHOCK: DEMOING DOOM

The PC as a gaming rig: This was what Gabe was hoping Microsoft would pick up on. "I wanted to go figure out how to make the PC a better games platform. So, I started talking to people, and there was this guy, Chris Hecker [now an editor-at-large at *Game Developer* magazine and member of the Definition Six game company]³ in a different group who was notorious...he was sort of a maverick...did what he was supposed to do, but he was always doing these interesting things. He developed WinG." Hecker describes the program as "a library that eliminates the performance differences between DOS and Windows 3.1 game graphics performance at or above their DOS counterparts on the same hardware."⁴ Newell describes the program as "supposed to prove that you could get decent graphics performance out of a PC."

Gabe was attracted to this innovation, and around the end of 1992 "I decided I would go find an interesting game and get it to run under Windows." He called friends in the game industry for advice, asking them "who was doing the coolest, most advanced game on the PC? Could the PC actually compete with a Super Nintendo system?"⁵

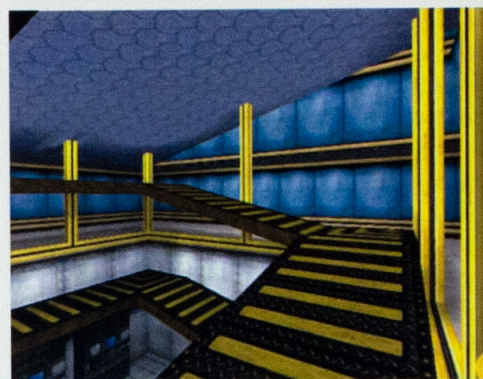
An industry insider pointed him towards Mesquite: "Somebody said, 'You need to go talk to these guys in Texas; they've got this incredible technology.' I downloaded it, and I got them to give me a version of *Doom*, and it just blew me away. It was so much cooler than any of the random secret Japanese game projects that we were being shown at Microsoft, and I couldn't believe that John Carmack could do this on a PC." Gabe toured Microsoft cubicles demoing the game, all the way to the biggest cubicle of all: "I showed it to Bill Gates, and I was like: 'Look! I don't know why we aren't pushing the PC incredibly hard. If a PC can do this, why in the world would you ever want to buy a dedicated games box?'" Gates agreed to a port, and the process of converting *Doom* to Windows began. "That was also how I started to get to know the guys at id."

Gabe watched John Carmack with increasing attention because "John kept doing cooler stuff." The wheels were beginning to roll, and others inside Microsoft jelled with the PC as a games platform. "So there was this other guy at Microsoft at the time who was well-respected and was friends with Michael Harrington."⁶ Gabe's friend Harrington, another Microsoft employee, was to become the co-founder of Valve.

Harrington's friend and former boss at Microsoft, it turned out, would be instrumental in the creation of Valve: His name was "Michael Abrash. Abrash, author of *Zen and Art of Code Optimization* is a veteran programmer. Back at Microsoft, the three shared the vision of PCs playing games, and continued to push for WinG *Doom*—until the project came to a screeching halt.

"It ended up getting moved to some other people."

Michael had had enough and was quickly hired by id Software to work on their next gargantuan release. Gabe continued at Microsoft until Abrash phoned him up. "He said 'you have to come see what we are developing now. If you thought *Doom* was cool, then *Quake* is gonna really blow you away!'"⁷ >>



The first level design offerings the newly assembled teams constructed, from 1997. These were shelved after it was released.

WILD BILL'S HICCUP

"So we started talking with them and he said 'you and Mike Harrington really should bail out of that place. I am so much happier now that I have left, the world is a much better place when you've freed yourself from that environment.'" Abrash even had their next venture already hypothesized: "'You guys should start a games company.' That was how we got the idea to leave."⁸

Money certainly wasn't an issue, as Geoff Keighley discovered during a 1998 interview: Both Newell and Harrington are part of an elite group dubbed the "Microsoft Millionaires," young software developers who all made enormous amounts of money with their Microsoft stock options. Some have gone on to start their own restaurants. Others have bought farms in Iowa. But Harrington and Newell wanted to make games.⁹

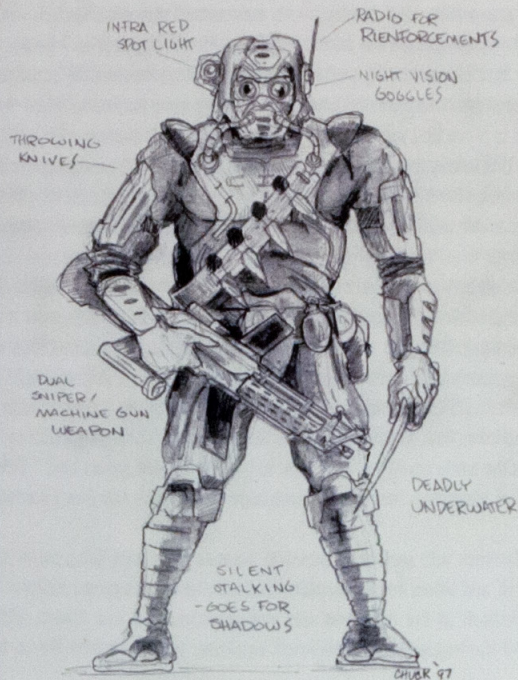
It was beginning to get easier for Gabe to entertain the idea of removing himself from Microsoft. "We were making enough progress on the PC side that there was this group [formed] (now the answer of a trivia question) which at the time had tremendous pull and clout." This was the infamous "interactive TV group."¹⁰

"Within Microsoft, they were saying stuff like 'the PC is dead! Intel is dead! Intel will never be able to catch up! Set-top boxes are the future! Cable companies and telephone companies will never ever allow PCs to be attached to their networks! They thought the only way to get high speed network connectivity was through these walled gardens at the cable operators. They were spending 200 million dollars per year developing these set-top boxes and these continuous media servers, none of which ever saw the light of day.'"

Gabe's team approached PC maker Gateway, and "started a project with Gateway which eventually became the Destination PC. It was the very first time we did the form factor and the remote, the wireless keyboard, there were problems with it, but it was like the first step toward working with a PC provider." When a prototype of the Destination PC was working, Gabe saw a potential power struggle starting. "The guy who headed up the interactive TV group, a guy by the name of Craig Mundy [now Microsoft's chief technology officer], went to Bill Gates and insisted that my group be moved under him. Within three months of being moved under him, which I objected to strenuously, he started firing the people who worked for me. I was sort of untouchable because I had been there for so long, but they started deciding that my people had performance problems."¹¹

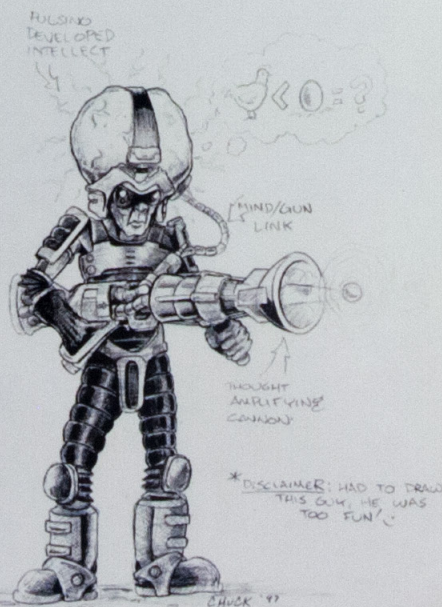
"That made it a lot easier to say okay, to quote Cartman from *South Park*, 'Screw you guys, I'm outta here, I'm going home.'"¹²

SPECIAL WEAPONS/CIA ASSASIN



VALVE

SPECIAL ATTACK / ARSONIC SOLDIER



VALVE

GABE NEWELL'S ABOUT TO MAKE YOU HIS PITCH

Gabe resigned, headed home immediately with Mike Harrington (who made the Microsoft leap simultaneously), and informed their significant others that the "game shop" idea was now extremely serious. Mike's wife Monica, a marketing executive at Microsoft at the time, didn't take her husband's plan for a game shop very seriously at first. "I remember when Mike first told me he wanted to start a games company," she recalls. "I envisioned him working out of the extra space above our garage." However, she soon realized how serious both Harrington and Newell were about their new venture. "I woke up when he told me he and Gabe would be signing a five-year lease for office space in downtown Kirkland."¹³ Gabe and Mike then made a stop-off in Texas in July 1996, partly to reassure himself of the decision he made, but mostly to receive some much-needed advice. He had already proposed licensing the *Quake* game engine technology. Michael Abrash, who was now with id, was happy to agree. John Carmack was less thrilled.

Their initial meeting with id wasn't exactly relieved with rockstar-style excitement. "I don't recall that when they came down to id, there was a lot of great chemistry," Abrash says bluntly. "Let's put it this way: It wasn't like when Nine-Inch Nails came to visit—that was a cool thing. These were guys that worked on stuff like Microsoft Bob and Home Automation. You're not going to walk into the coolest game company on the face of the earth and have the guys say, 'Wow, nice to hang out with you!'"¹⁴

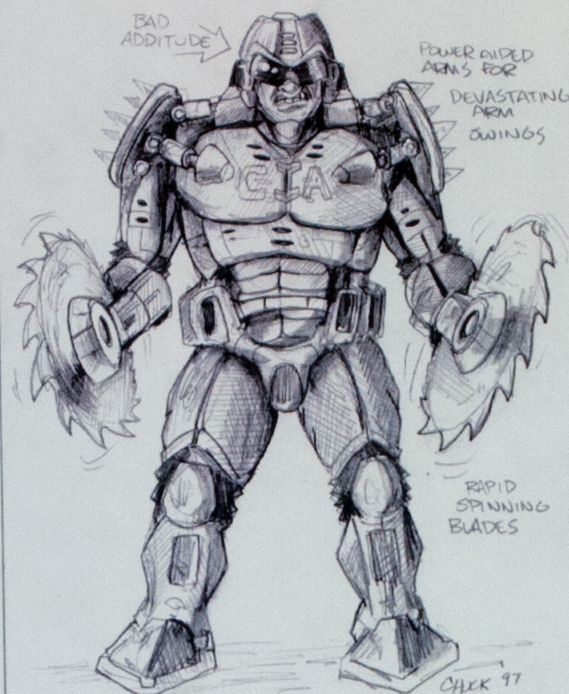
Indeed, without Abrash's assistance, it's unclear whether Valve could have licensed the *Quake* engine. But because Abrash was willing to vouch for them, the powers at id agreed to meet and work with Newell and Harrington. It was an important break because the partners viewed acquisition of the *Quake* engine as critical to getting their company off the ground.

"When we sat down and looked at it, the areas that we wanted to be innovative in for first-person action games (such as storyline, believable environments, and character development) did not require us to be innovative in the areas where John Carmack had already done a lot of work," says Newell. "It would have been too much to go from zero to 25 people and have a stable team to build an engine at the same time."¹⁵

Gabe and Mike also sat down with the raven-haired John Romero, the founder of id, too. "I think we talked for about half an hour or so. I remember trying to emphasize how important it was to hire a game designer, not just a level designer, to handle the overall vision of the game,"¹⁶ Romero recalls. After picking up more tips and discussing the inner workings of the business, the two developers headed back to Seattle with *Quake* source code in hand. Except for Abrash, no one at id was sure they'd ever be back. "Everyone at id wasn't very optimistic about what Mike and Gabe were going to do," states Abrash¹⁷. >>

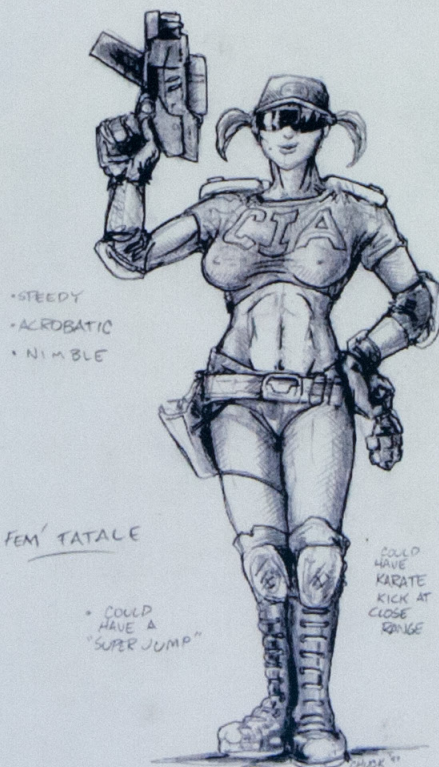
Four early sketches for "CIA" operatives that include an Assassin, a "brainboy" with a mind-gun, a Butcher, and a Female soldier.

SPECIAL UNIT. AKA "THE BUTCHER" / CIA SOLDIER



VALVE

LIGHT ATTACK / CIA SOLDIER



VALVE

YOU'RE NOT THE REGULAR PIZZA-DELIVERY BOY...

On the plane trip back, Newell was thinking back to the advice Carmack gave. "The guys from id were hugely helpful. If it weren't for John, if it weren't for Michael, Valve wouldn't exist. They were helpful to us technically; they helped us find employees. We asked John Carmack who we should hire, and he said, 'You could go headhunting around, do that whole bullshit thing, but what you really should do is [check out] these two guys down in Florida doing just totally crazy stuff; they're the guys who invented an airplane that you can fly around in *Quake* and I would have told you before I saw it that you couldn't do that. So you need to go hire John Guthrie and Steve Bond.'"¹⁸ So he did, much to the chagrin of fans of their mods who saw them disappear from the scene without knowing what they were up to.

Before joining the Valve team, John Guthrie and Steve Bond (who started one of the first mod websites called *Quake Command*), who along with Dario Casali in the UK were part of an early group of like-minded modders. They were also part of the initial Valve gathering. At the time, John and Steve were a little hesitant to entertain such offers, thanks to the disrespect of certain developers. "There was a lot of exploitation going on with developers at that time and also a lot of unfounded arrogance on their part," John recollects. "We had a bunch of people emailing us to say 'you have to gather this team,' or 'you have to publish this mod.' It never really made a lot of sense to us, it just never seemed like the way we wanted to spend our energy. It often wasn't the type of person that you wanted to get associated with. The first couple of times we had offers to work for someone, they didn't pay us, and they wanted us to take a bunch of time doing the work. It chased us off more than pulled us in,"¹⁹ Steve Bond finishes.

John remembers their first Valve encounter. "We got this mail from Gabe, who was this guy we never heard of, and his note was pretty straightforward: 'We are starting this game company in Seattle, we would like to talk to you, give us a call.' So I ended up calling him up, and we talked for a bit and he asked me to come for an interview. And I was like, 'I can't afford to come up for an interview!' I was thinking that I was going to have to take a road trip up there in my car. In my previous job interview at Pizza Hut, when I left my job from the Waffle House, I had to finance my own travel. I really had no experience dealing with software companies or anything like that before."²⁰

After it was explained that Valve would be footing the bill, Steve flew up first. "Gabe bought Steve a plane ticket, a rental car, and a hotel room." It all seemed too good to be true. "Steve was standing at the airport," says Guthrie, "waiting for the electronic ticket to come through, and he kept saying, 'This has got to be a joke.'" But it wasn't.²¹ A week later, Guthrie "flew up here, saw the place and it was just an awesome experience. I was really afraid; actually my biggest fear after my meeting with Gabe was that I wouldn't get the job. There is no way to sort of scrape up against something like this and then go back to Pizza Hut."²²

Kingpin

Has disabling psionic attack and an psionic defence that makes it immune to missile weapons

Massive brain fills entire body

4 eyestalks give 360 degree vision

clicking sound as it walks on its three chitinous legs

Big Mama

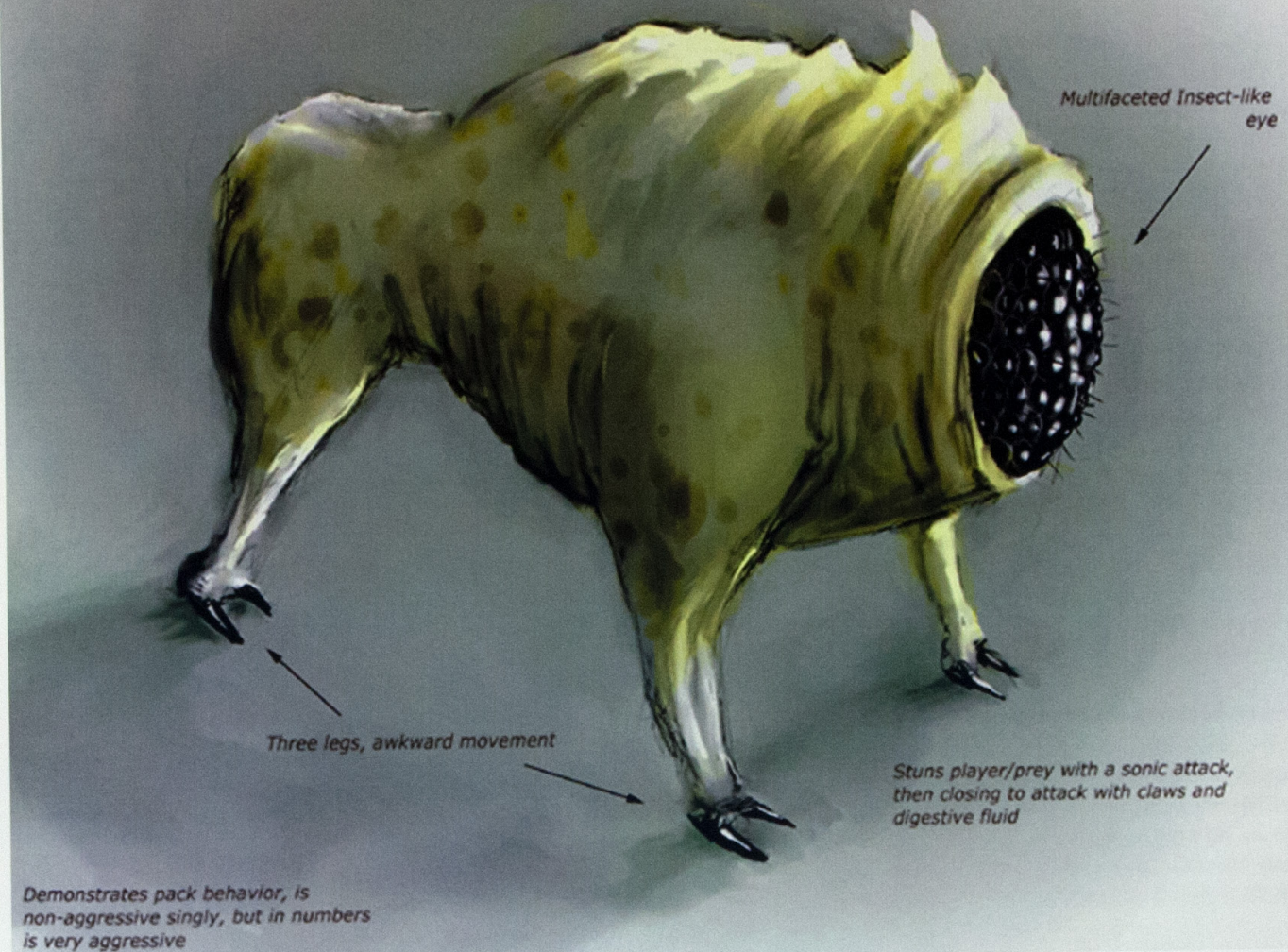
Has little or no offensive attack, but hard armor protects it from most all attacks.

Hard, crab-like outer shell

When killed, egg sack bursts open to reveal dozens of half formed baby zombies, which are very aggressive

Large pendulous egg sack contains an almost limitless amount of infant parasite creatures, "grey blobs" to use players' every day words

Houndeye



Muddy



A selection of Ted Bachman's art. Clockwise starting above: the Houndeye, the Ichtheosaur, Big Mama, and Kingpin.

Mr. Friendly

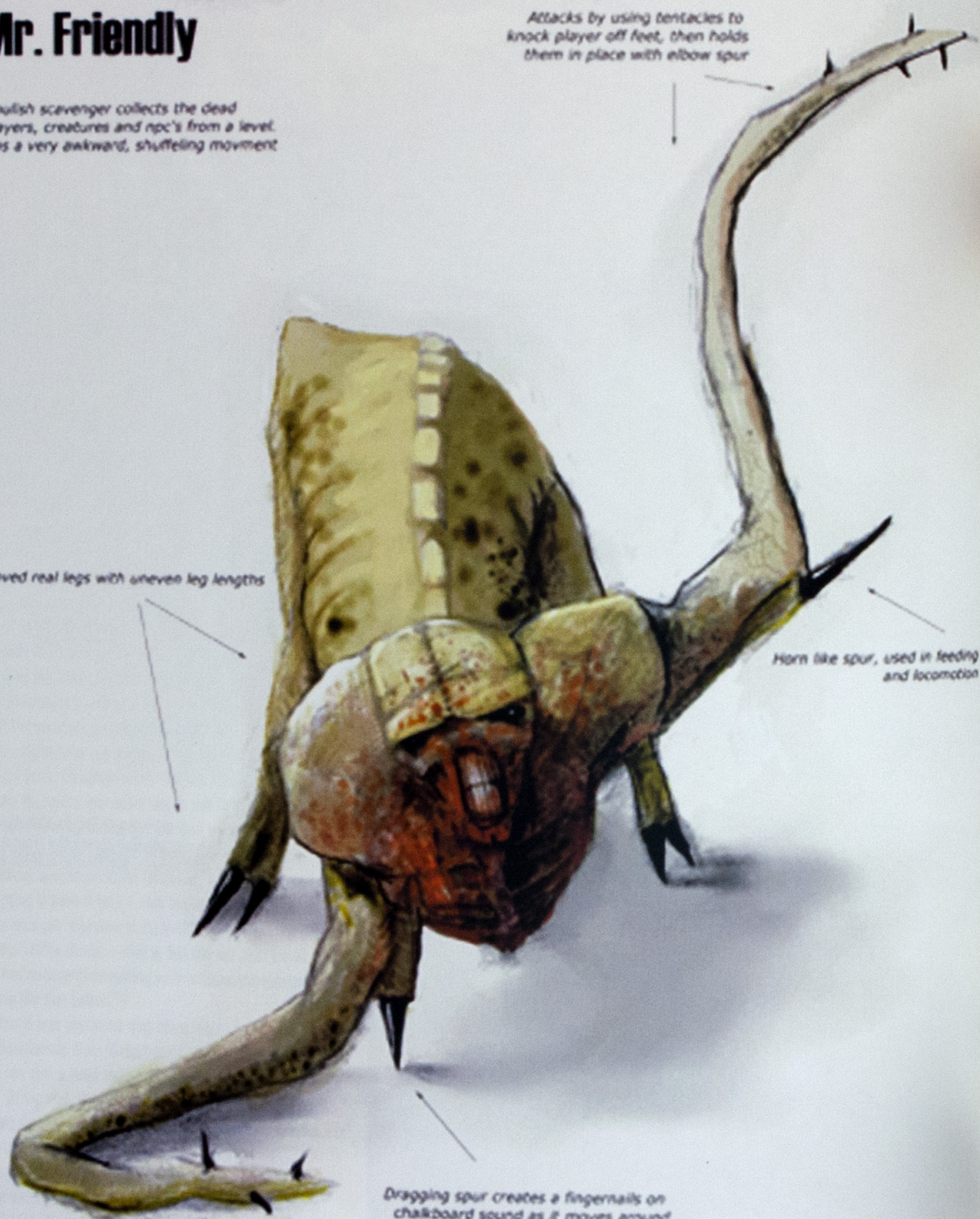
Goulsh scavenger collects the dead players, creatures and npc's from a level. Has a very awkward, shuffling movement

Attacks by using tentacles to knock player off feet, then holds them in place with elbow spur

Hooved real legs with uneven leg lengths

Horn like spur, used in feeding and locomotion

Dragging spur creates a fingernails on chalkboard sound as it moves around



Fast Walker

Highly intelligent, dog like creature, follows player around, eating all the things that he kills.



Acts as a guard dog/lookout for player, runs away in the presence of major opponents or alerts the player to important items/events

The infamous Mr. Friendly and the Spidasaur.

An unused variant, with black clothing that was given to the assassins



MODDERS UNITED

When Guthrie wasn't arranging pepperoni, he was spending time with Bond playing *Quake* when he should have been dealing with tech support. Steve reminisces about those times: "We were also working at an ISP at the time and it wasn't doing very well. So we were just the 24-hour tech support guys there, so we were just going to play *Quake* all the time and take turns taking the calls and hope that when it was your turn, you got the guy who forgot to plug his modem in instead of the 85-year old woman who doesn't understand what the internet is. We got 45-minute service calls, and I'm just trying to watch John play *Quake*... that's where all the *Quake Command* stuff started and how we built up, I guess you would say, the reputations that ended up getting us interviewed at Valve."²³

Steve was "part of the mod community; I was doing levels with something as pertinent as a notepad and graph paper."

"Yeah," remarks John, "we were dabbling with the Q tests and other people were drawing maps by hand." Bond was "messing around with the *Doom Construction Kit* that Ben Morris wrote, goofed around for a little bit of game design, level design. And I ended up starting a mod team pretty early on, and we recruited a couple of guys, then everybody got hired by Valve." Another Valve team-player and part of the initial recruitment drive was Dario Casali, who was studying business at Oxford University in the United Kingdom. This was after his maps were featured in *Final Doom*.

Hiring as many talented young modders as they could, Gabe and Mike set them to work on the company's first-person action title. The designers shared the same office for much of the development period. Fortunately, the chemistry was there: "If you find a small group of people that you can work with that closely, and no one gets murdered," Steve remarks, "then you've got something. Although it felt like boot camp. It really did."²⁴

Another designer in the first round of hiring was Game Designer Dave Riller. "I used to write small D&D-like text adventures (in BASIC) on the Timex-Sinclair ZX-81 back in elementary school. When *Doom* and *Quake* came out, I tried my hand at some level and game design, which ended up catching the attention of some people that referred me to Valve... which led to an interview. I interviewed when Valve was just starting out, so there wasn't really anything for me to evaluate game-wise; I made my decision based solely on the quality of the people; they just blew me away. I was very fortunate to have had firsthand experience with this really nontrivial thing called 'chemistry' back in my band days, and I felt it in the people at Valve, so I acted on my a gut feeling and moved my family here from the Washington, D.C., area."²⁵ >>

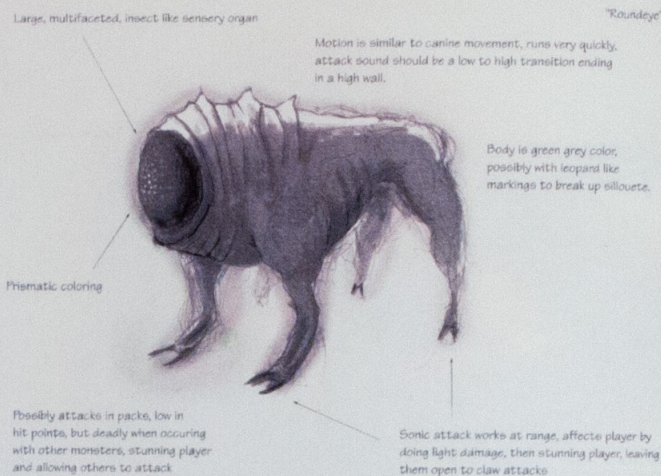
MR. FRIENDLY'S PHALLUS

Steve, John, Dario, and Dave weren't the first employees outside of Gabe and Mike's friends to be hired, though. That award goes to Art Director Ted Bachman. Ken Birdwell, Valve's senior software development engineer, who was once described as a "Harley-riding-prosthetic-limb-software-creating genius"²⁶ remembers the event, even though Ken was still employed at Microsoft at the time. This was months before the name or game style was even contemplated, and before Valve even properly formed.

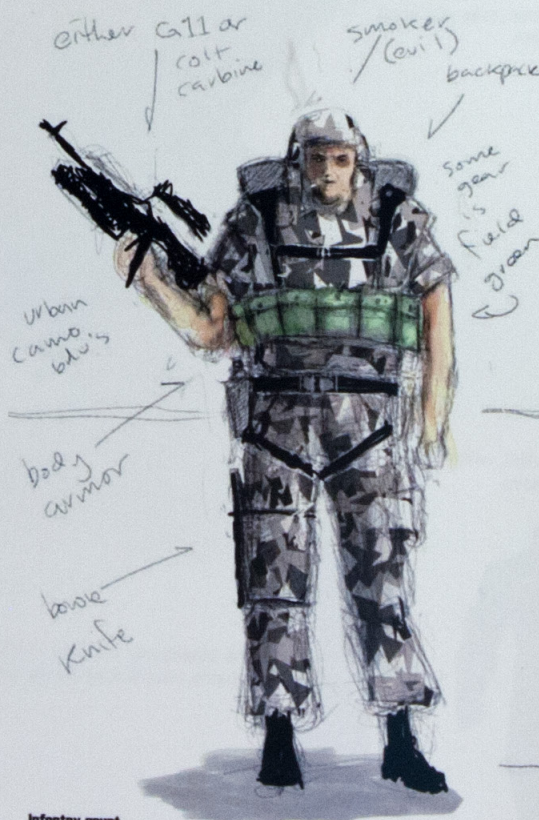
Ken picks up the story: "Gabe had roughly worked out what genre he personally wanted to do, and now he needed a concept artist to get started and asked me for a recommendation. I thought of a bunch of folks from art school, but I didn't have anyone specific in mind, then I remembered my good friend TK's little 12-year-old skater punk brother who used to draw these sorts of things, and I had always liked his work. It was really nice classical stuff. I asked TK about him, learned that he had just graduated from the University of Washington art department. I figured he got a lot better over the years."²⁷ Ken also figured Ted would have continued with his classical style. He figured wrong.

"Gabe called him up, and asked him to do make a couple of sketches of possible monsters, then bring them in for an interview. He came in, looking nothing like how I remembered him, he was no longer a little kid, he's now 6' 2", all tattooed up, and various metal bits poking out of his body. He then opens up his portfolio and starts showing drawing of these really disturbing and unsettling looking creatures, not at all what I was expecting. They looked like deformed alien genitalia, except for this one that looked like a Cthulhuesque dog that had a fairly obvious phallus, and it looked like it was about to mount something."

Ken, who was with Gabe at the time on a break from Microsoft, sat there, horrified. "I'm thinking, 'Oh god, what have I done, this guy's a freak.' The pictures are going around and he and Gabe are involved in noncommittal small talk, nothing too specific, sort of politely dancing around various aspects of the artwork, when finally Gabe asks, 'So, ahh, what's this underneath the monster, Mr. Friendly?'"²⁸



An original sketch of the Houndeye.



The earliest known sketch of the military grunt, looking somewhat like the finished version

Infantry grunt



Infantry grunt

Later iterations of the military grunt cement the style.



Human Sargeant

- Spray attack with M60
- Two rocket attacks with LAW launchers
- Has a melee attack at close range
- Smokes a cigar
- Flattop & bad attitude
- Commands squads of grunts & is in radio contact with command.

There's a pause.

'That's his penis,' Ted says.

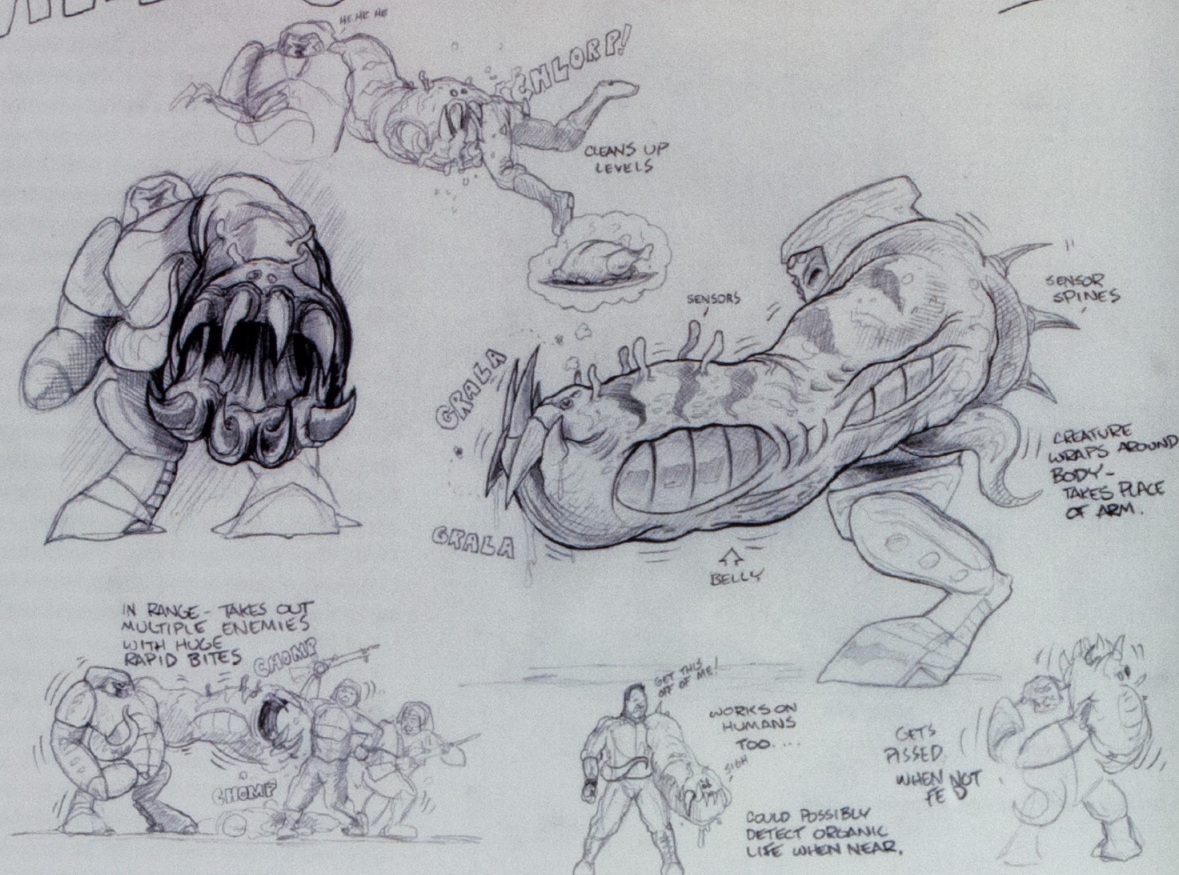
'Uh huh,' says Gabe.

"I'm starting to really squirm but have no idea how to stop this train wreck. 'Well,' Ted pauses, 'I was thinking, what's scary to our target audience? They're mostly 14-year-old boys, they've seen all the big brutish monsters with guns for hands already—that won't really do it—so I'm thinking what actual fears do they really have? So I decided to go with something that elicits a homophobic response.' He then starts into a long detailed talk about how 'Mr. Friendly' lurches about in a permanent reptilian sexual display, grabbing the player with these long tentacled arms, and pulling them toward itself until the point of fatal copulation."

"After he finishes up, there's another long pause as Gabe continues to stare at the image.

"'Excellent,' Gabe says, 'That's exactly what I was looking for.' He and Ted then get into an excited conversation about possible psycho-sexual alien behaviors and clinically disturbed adolescent sexual fantasies and I sit back, sort of stunned, looking back and forth between the two of them thinking 'Oh my god, what have I done?' From that point on, I didn't know where it was going to go, but I knew I didn't want to miss it. For me, that was the first day of Valve.²⁹ >>

ALIEN ORGANIC CHAINSAW CHUCK



Early sketch design for an Alien Organic Chainsaw that "cleans" levels of materials like dead bodies

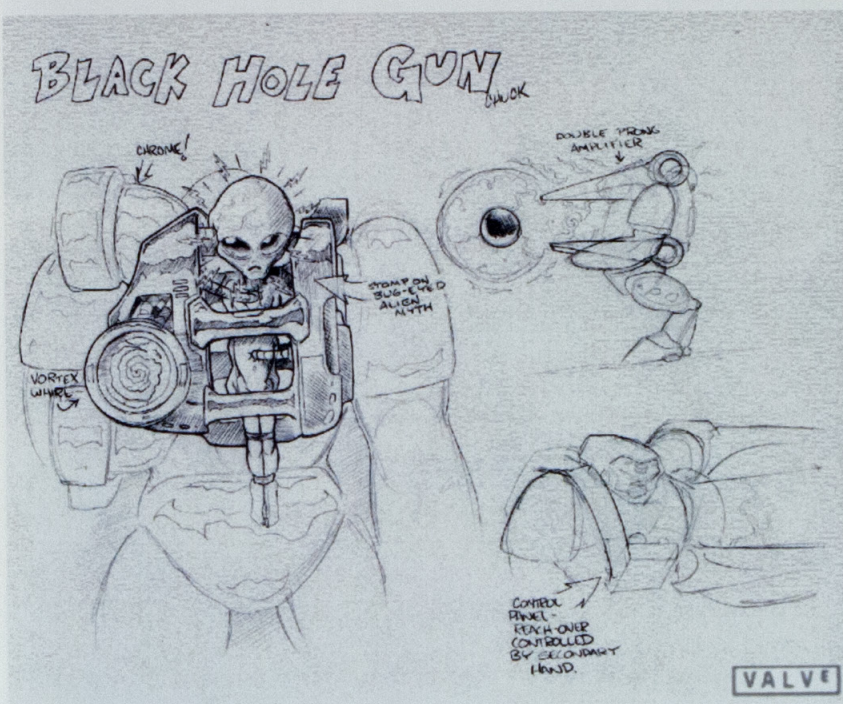
GETTING TECHNICAL

Other integral future members of the Valve Cabal were more hesitant to head off to the damp weather of Valve's Kirkland headquarters. The hardest sell of all was coaxing Yahn Bernier (software development engineer) away from his patent law practice in Atlanta, Georgia. "I had always been into games," Yahn says, "but never thought you could actually get a job making them. I was following what was going on with id Software's *Quake* title. During the spring of 1996, id released *Qtest*, the original test version of the *Quake* engine. I became interested in the use of BSP [a map format] trees by the engine. Someone on the web had reversed engineered the .bsp file format, and using that knowledge, I set about writing a 3D tool to take level data and build a BSP tree and output it to this format. I was actually able to get that little side project working during the summer before *Quake* shipped and it occurred to me that I had the beginnings of a *Quake* editor."³⁰ Yahn's BSP *Quake* Editor was released in the summer of 1996. It was this program that eventually lead to Yahn's eventual relocation.

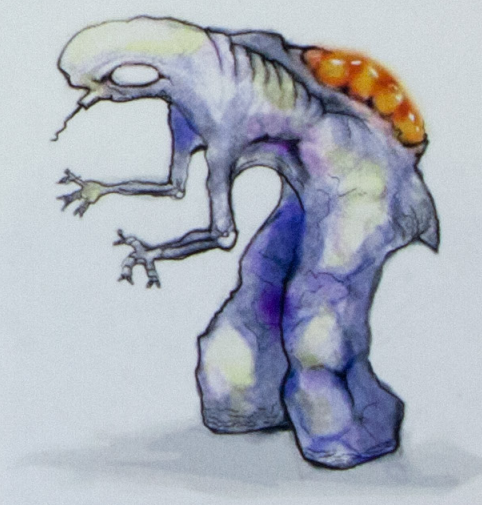
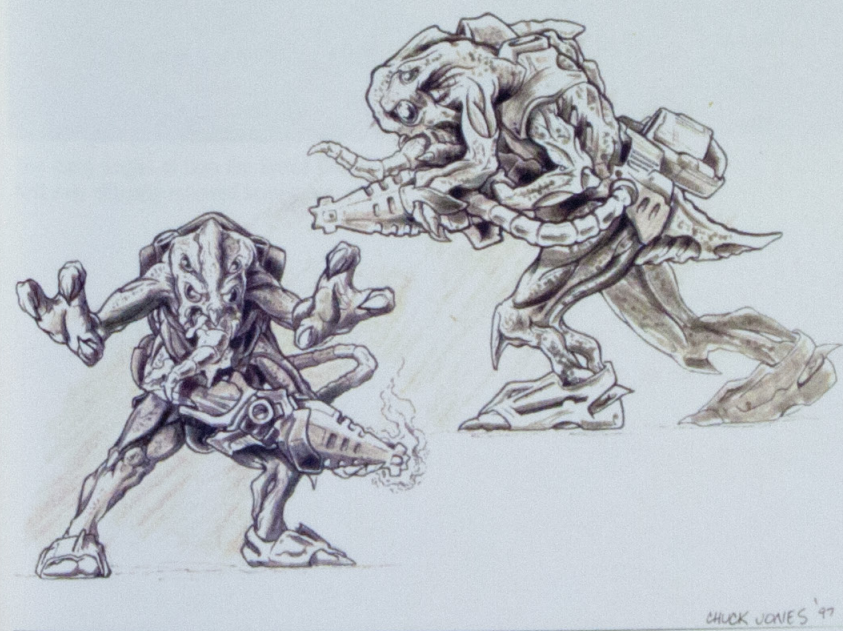
"It turned out that before I quit working on the BSP editor at version 0.94, a lot of people had gotten used to using it, including folks at several of the emerging game studios, including Ritual Entertainment, Ion Storm, and Valve, LLC. The 1997 E³ game trade show happened to be held in Atlanta, so it was really convenient for me to meet with all of the folks whom I'd corresponded with about BSP. It was around that time that I started to get serious interest from game companies looking to hire me away from my law practice. I didn't think any of them could lure me away. Some time in the fall of 1997, I built a special version of BSP for Dario Casali and Dave Riller at Valve—they needed a special version because Valve had modified the *Quake* engine it had licensed to support 16-bit color. I happily created this version, not knowing that Valve already had an official in-house editor, Worldcraft, which they had purchased from Ben Morris at the same time they hired him on to continue working with it. BSP was known inside of Valve as "that other editor" and level designers using it were subject to a bit of a hard time by management."³¹

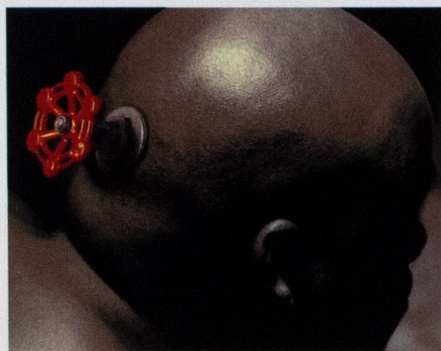
This back-and-forth battle between BSP and Worldcraft continued until late 1997, when Worldcraft's creator, Ben Morris, who was one of Valve's earliest hires, decided to leave. "Mike Harrington asked Dave Riller and Dario Casali about getting in touch with me. Mike sent me an email with a subject along the lines of 'Software Development Engineer opportunity.' I must have thought it was spam, because I deleted the email without reading it. A few days later Dario emailed me and asked if I'd gotten Mike Harrington's message yet. I said, 'um, no, I better check through my deleted mail.' I found the email, responded that it sounded all good, but that I didn't think Valve would be able to convince me to quit my law practice and move cross country, etc. Mike Harrington had Jay Stelly interview me via telephone and I guess I said enough intelligent stuff that they flew me out for interviews in January of 1998."³² Yahn was taken aback at the grueling interview process Valve had set up for him.

"I didn't realize that I was going to be subjected to a full day of technical interviews and I had a severe headache by the end of the day, but at the end Gabe offered me a position, and I discussed it with my girlfriend (now my wife Beth) and friends and accepted the offer the next week. I started at Valve on February 23, 1998." Then the headaches began anew: "Just in time for crunch-time on *Half-Life 1*!"³³ >>



More early creations that failed to make the cut.





The eventual "VALVe" logo and "men of Valve" compositions for Valve's business cards and official letter-

THE NAME GAME

With major job roles rapidly being filled and an expanding number of staff, the consortium quickly sat down to define its company. "We came up with the name the same way we make any decisions. When we were coming up with Valve we were in a lot of ways reacting to the macho posturing that was going on in the industry. We wanted to say, 'Okay we are not the super testosterone quad barrel shotgun-toting developers.'" They began throwing around ideas for names. One of the first to be short-listed was Hollow Box. "The idea was, 'What's going to fill up the hollow box?' Our games would fill that hollow space."³⁴ Then there was Rhinoscar....

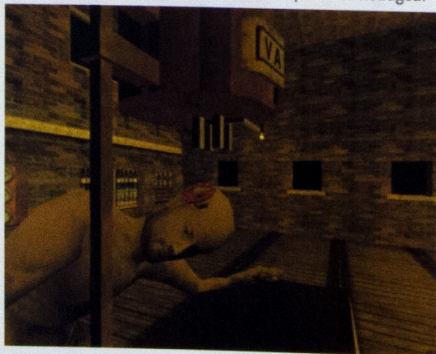
"It was a little mascot guy. We even did the animated treatment where there is this sort of friendly little guy walking along and then you see this rhino come charging through and spear him and he sort of gets up, he's pretty durable, and he looks down and sees this big hole in himself. That was an idea, it was fun to work on but it didn't end up being a great identity for us. That was more when we were thinking...are we going to do console games, are we going to go in that direction? So it was more of an identity that would have worked in that space, being more of an obvious symbol of what our games would mean to gamers."³⁵ Both Hollow Box and Rhinoscar were quickly thrown out, replaced by the more appealingly subtle "VALVe" software, and a conduit through which game development could flow. Once they found office furniture.

Ken Birdwell, the senior software development engineer, remembers the earliest company meetings as Valve set up impromptu digs in their newly acquired office space in Kirkland, Washington. "They were in unfinished office space...concrete floors, wires hanging from the ceiling, metal wall frames, and we were sitting on buckets and sawhorses until we finally broke down and did a Costco run and picked up the typical low rent office furniture." With real chairs, but no time to decorate, the meetings continued apace.

Ken again: "The main discussions, besides getting a more detailed version of the game we wanted to do, was what kind of company it was going to be. I think originally both Mike and Gabe sold the idea to their wives by telling them it was just going to be something small, a hobby thing, hang out in the garage and play with making games, nothing too serious. As time went on and we got more interested in that we could do something new, it started to evolve, but not without some reluctance. Some of us wanted it to be a real company, make something interesting and do this full time, while others were still a bit burnt out from spending years and years on other high-pressure projects and wanted to take a break and just do something simple. We ended up compromising and deciding on doing a *Quake* based 'TC.'"

This TC, or Total Conversion, was to use id's *Quake* engine, but replace all graphics, textures, and storylines with something new. The embryonic team were confident the game "could be scaled back as needed and in theory we could get away without doing too much content as long as we had some good ideas, and the amount of time each would invest could be adjusted." Of course, this idea of part-time, stress-free workloads didn't quite pan out. "Over the years, *Half-Life* grew to be a bigger and bigger 'TC,' to the point where it was no longer a hobby, but pretty much consumed all of our lives."³⁶

A *Half-Life* engine running the "moving" Valve logo, as a sepia-toned worker receives a new piece of headgear





The many angles of Ivan the Space Biker (left), an original character that appeared in the game's first ever officially released screenshot

THE SIERRA CLUB

GameSpot.com charted Valve's first steps in finding a publisher back in 1998:

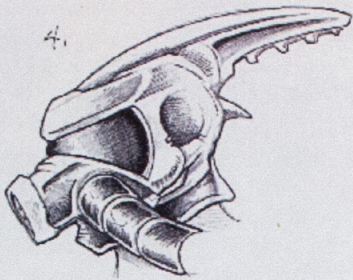
It had been mostly smooth sailing for them up until this point, but they were about to meet a strong cross-wind. "It was weird going from Microsoft, where you were really respected, to going into a meeting with a game publisher who said, 'Go away, stop bugging me! Come back with credibility!'" remembers Newell. He recalls one meeting in particular that didn't turn out as planned. The presentation was proceeding as normal, when it was mentioned that Valve wanted to use a skeletal animation system (animating the characters using digital bones and joints) in the game. As soon as they suggested such a concept, "the publisher said, 'Okay, meeting's over!'" They didn't believe we could do it," says Newell, with a wide I-told-you-so grin.

But their luck turned when Newell emailed another Seattle publisher, Sierra On-Line. Ken Williams, industry legend and Sierra On-Line founder, received the message. Williams recalls that when he got the email from Newell, "I had been looking aggressively for some product in the *Quake* genre. I was looking at licensing one of the 3D shooter engines and was negotiating with id and some others."

Fortunately for Valve, it had the advantage of a secured *Quake* engine license. Williams was intrigued. "Gabe said he had the license and a team of ex-Microsoft people put together. It was the right email at the right time." A meeting was set between about 10 Valve staffers and Sierra in November of 1996. On that fateful day, it snowed in Seattle, an extremely rare occurrence that basically shuts the entire city down. But as Harrington says, "There was no way we weren't going to show up. We all get in my four-wheel-drive car, slid around, and finally get to Sierra." The entire office building was vacant, except the one person who made it into work: Ken Williams. Valve began its pitch and, as Newell recalls, "About 20 or 30 minutes into the presentation, when we were just starting to gear up for our big close, Ken says, 'Okay, you're done! Let me tell you why you should be working with Sierra rather than anyone else.'" They had caught him—hook, line, and sinker. >>

The G-Man, an evil and mysterious presence, was also created during this time; this is the first version of him.





What impressed Williams so much about the Valve team? "Most of the developers I spoke with were groups of artists and designers, but no engineers," he states. "Valve were the first ones who were using an existing engine as a starting point, not a finishing point." In addition, by 1996, Sierra had started to feel the pain of not having products in hot genres, such as action and real-time strategy. It was time to make a move. "We needed to get into the 3D shooter category," Williams says. "I did like *Doom*, but I saw it as a one-trick pony. By the time I decided we wanted into the genre, we were too far behind. With 20/20 hindsight, I blew it when I had the chance to buy id and didn't." You read that right. Sierra had the opportunity to purchase id Software in the early '90s, but the deal broke down over a couple thousand dollars that Sierra didn't want to put up front (although this fact is disputed by John Romero, who reckons it was a couple hundred thousand dollars). But Williams didn't get mad, he got even. "Valve was the first group I had spoken with that could put Sierra in front of id," says Williams.

Shortly after the meeting with Valve, Williams left Sierra, and the torch was passed to Scott Lynch, the man who briskly reinvigorated Sierra under the new label Sierra Studios and currently works for Valve full-time. "Sierra got a little comfortable in the early '90s," he says. "We turned into a factory instead of a creative colony... We weren't seen as an innovative company." Valve had the potential to change all that. But Lynch did have his concerns. "I think the big question with Valve right from the beginning was, 'OK, you've got the *Quake* engine, but are these just going to be new *Quake* levels?' he says. "What we all wanted to see was Valve take the technology as a foundation and add something new. When they started talking about telling a story and creating a persistent world, it was pretty obvious they weren't going to do a mission pack with the *Quake* engine." Sierra was interested and confident. They signed Valve up for a one-game deal.³⁷

The original story for the game featured many more alien forms, and these are a selection of those that didn't make the grade. They are, going counterclockwise, an alien Archer, a tiny and grotesque ground creature called the Snapbug, a flapping Stukka-bat, and the infamous Panther-Eye.



REQUIRED READING

With Valve firing on all cylinders, the first few staff members had already narrowed the game concepts they wanted to explore to a choice of two. In fact, a decision was made before Gabe and Mike even snagged the *Quake* source code. One was the first-person shooter that Ken just mentioned, but the other was “the submarine game.” Gabe clarifies: “The submarine game would have required us to do our own engine from scratch. It was a science-fiction submarine game—it wasn’t really like the WWII submarine games you’d expect. The ‘stealthiness’ of it...we were really interested in exploring that, but doing it in a future context.”³⁸ The idea was eventually halted completely:

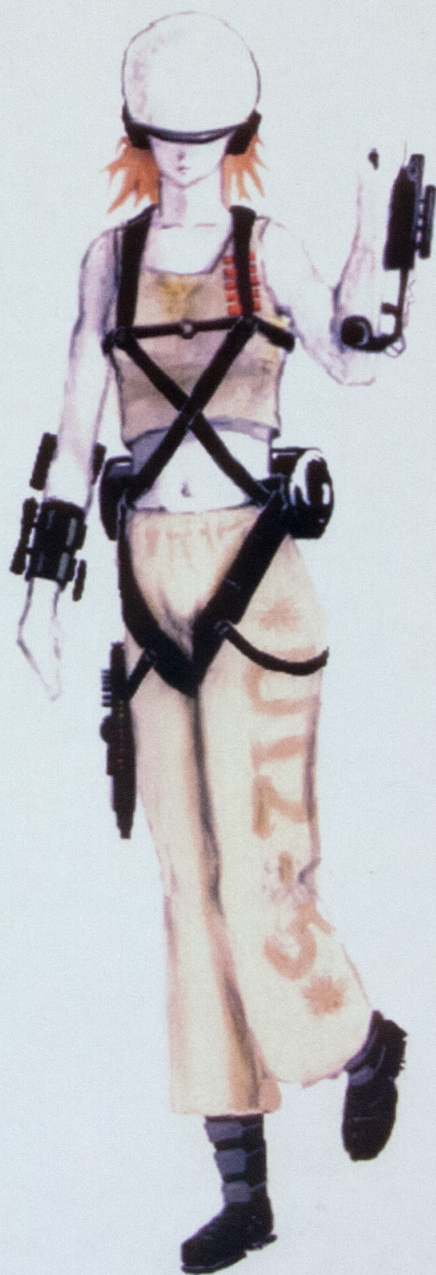
“We didn’t really get far enough along to know what was possible and what wasn’t. When we went down to visit id in Mesquite, and Carmack handed us the CD and said, ‘Oh, this is the source code to *Quake*,’ we were like, ‘OK, we’re not doing the submarine game.’” A month after the Mesquite trip, the games were narrowed still further. The ‘shooting game’ plan was still happening (“we [decided to do] something that looks more like a first-person action game”), but the submarine game was replaced in favor of a game called *Prospero*. “We had two teams; one was what would eventually become the *Half-Life* team, and the other was working on a game called *Prospero*.”³⁹ This was to be the world’s first third-person interactive library adventure. Gabe explains:

“*Prospero* was about a library and was headed up by Greg Coomer [a product designer and another ex-Microsoft employee]. It was about all sorts of cryonics and magic, it was very much an attempt to rethink what adventure games should be like. So, the premise for that was actually interesting and I still like it a lot, which was...you had helped create this library a long time ago, and you were downloaded into the library to build these sort of modified versions of yourself to take care of the library. The problem is that the library is being attacked, and so it keeps creating versions of you to try to defend itself, but they all keep going mad and create tall, crazy versions of you and scatter them around....”⁴⁰ A little like Sigourney Weaver’s clones in *Alien: Resurrection*.

“Exactly, although this predates that movie, so we can’t say we were inspired by that. The library has finally given up, it’s just recreated a young version of you and said ‘Okay, screw it, I’m going to remove myself. Everything I try to do fails, every modification I make to the original character fails, so I am going to bring back the original you from a younger age.’ So you don’t remember creating the library or *anything*, and the library places you and lets you figure out the rest. The library connected you to these different worlds, so it was a little bit like *Myst* in that regard. So you would go into these different worlds and find versions of yourself that were there, some of whom would be helpful, some of whom would not, and you had to figure out how to get the library turned back on and defeat this invading alien intelligence.”⁴¹

Hyper-intelligent libraries under alien attack creating oddly angular versions of yourself was certainly a novel concept and could be seen as an attempt to emulate the success of adventure games at the time, so the creative process began in earnest. “Basically, we got to the point where we were doing a lot of concepts levels. We were still doing *Prospero* in early 1998. Then we ended up pulling the plug on that. The big problem was that it was too ambitious. I mean, a lot of the things we wanted to, we couldn’t do. We could build it really well now with the *Half-Life 2* Gold Source engine, but at the time we were just pushing too hard. Back then, we could do cool visual effects, but we couldn’t figure out how to get the game to work the way we wanted to...this was back in the era of 75 megahertz Pentiums.”⁴² Once *Prospero* was shelved, that team merged, focusing on finishing the company’s other, higher-profile offering; a first-person shooter code named *Quiver*. ■

An early sketch of *Prospero*’s Female Protagonist





Quivering with Anticipation

.02

“It’s an amazing feeling to think that something really innovative and cool
is going to come out of the guy in the office next to you.”

—Gabe Newell



Three military grunts attempt to corner a Panthereye devouring a scientist in this early magazine render.

▶▶ PLAY MIST FOR ME

Quiver was the clandestine codename for the first-person action romp the company had firmly committed to once the *Quake* source code was licensed and *Quake* mod builders were lured away from their real jobs. To set the record straight, *Quiver* and *Half-Life* were the same broad game idea; the name changed at a later date. It was also known intermittently as *Quiverent*, with *Quiver* being a reference to a Stephen King short story *The Mist*, in which unspeakable horrors emerge from a fog bank near the Arrowhead military base and surround nearby villagers in a grocery store.

To replicate suspense-laden terror in waves, Valve needed an accomplished writer. They weren't following the current "cheesy" first-person formula. "For a long time," explains Newell, "3D action games seemed to keep treading down the same path—an increasing focus on a narrow definition of gameplay and a focus on the rendering [graphics] instead of the gameplay." Valve was intent on bringing something new to the game environment apart from snappy graphics. Not everyone thought it was a good idea.²

"We'd occasionally get people who would say things like: 'Stories? Who needs them? I just want a rocket launcher that fires faster,'" says Newell. "It's pretty scary to be spending a big chunk of your own money and be going in a direction that's different than the norm." It's a sad commentary on the game industry that Valve was "different than the norm" just because it wanted to develop a cohesive story to accompany the game's action elements. Michael Abrash says that Valve realized something early on that helped it craft a highly balanced game: "For the most part, level designers can't design games," he says. "What Valve figured out was that you needed a creative committee to design a game. A level designer worries about things such as how to lay down the bricks, but not necessarily the story and the scope of the game."³

Gabe solved this problem by hiring writer Marc Laidlaw, and they both sought inspiration from the horror genre. Marc Laidlaw [writer and game designer], whose previous occupations included 10 years as a legal secretary, was a critically acclaimed writer of fiction, known as "strange novels"⁴, including *Dad's Nuke* and *The 37th Mandala*. He cites a second main influence on the storyline and prickly emotional horror of *Half-Life*: "*The Outer Limits*, especially the episode *The Borderland*,"⁵ which tells the story of a team of scientists who manipulate magnetic fields to enter the fourth dimension. As Yahn Bernier remembers it, "The original concept for *HL* came from folks here thinking about Stephen King's short story *The Mist*, along with a healthy dose of *X-Files*—style conspiracy thrown in."⁶ Gabe describes the process of trying to emulate the feelings the team had back in 1993, when *Doom* first arrived.

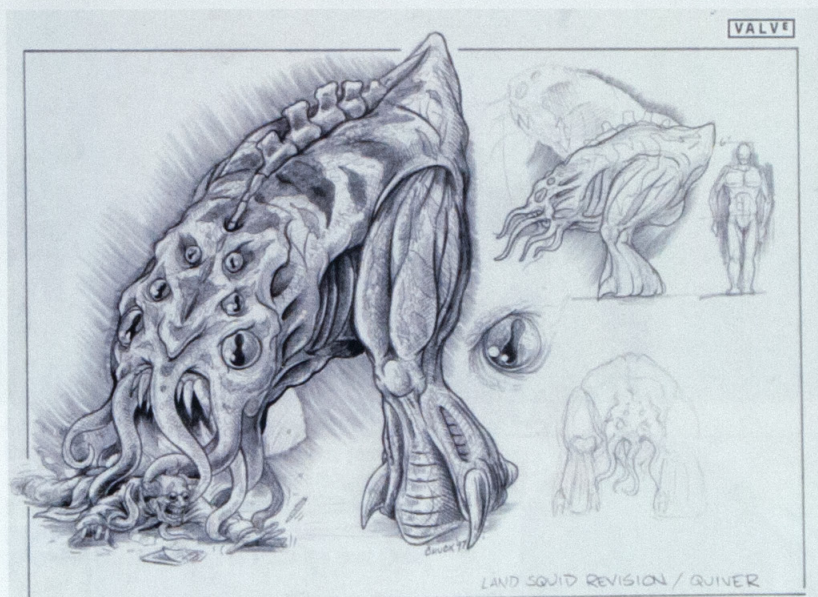
DOOM DREAMS

"I want to make sure that I capture it correctly: When you talk to Valve's Dario Casali or Robin Walker, their memories of *Doom* are of an incredibly frenetic multiplayer action and being so good at it that Dario won the UK championship. These people think of it very much as being this frenetic testosterone dominance, 'I win, you lose,' kind of experience. So when we had these conversations about what made *Doom* cool, a lot of them were about both Valve and within the community it really seemed to be about that aspect of it: You know, the 'I am the master of the universe, everything that sees me should be afraid of me because I will slaughter you' aspect. When I remember playing *Doom*, I was just being scared silly, it was like, 'Oh my God...it's another one of those flashing light areas...I am so screwed now. And, every time I'd move into an area and I'd hear that door sound going off...."

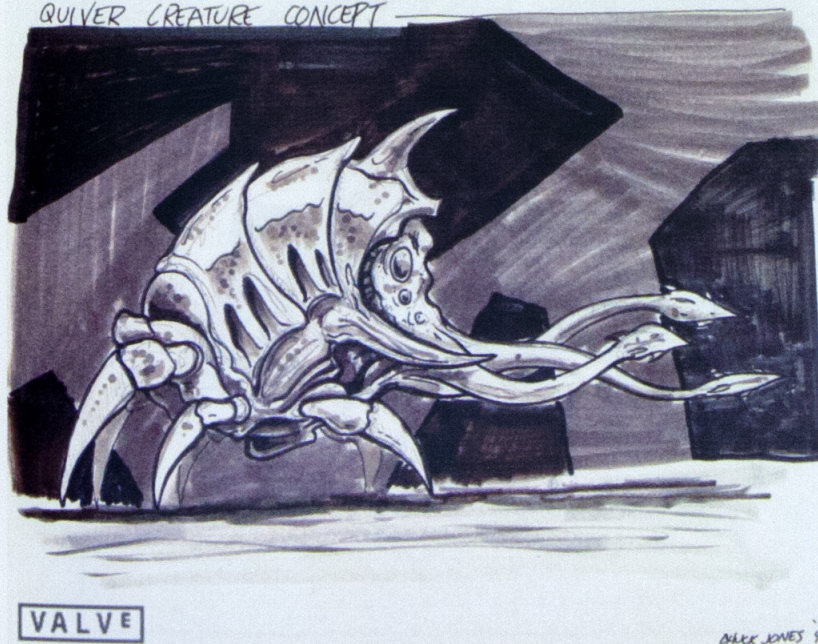
Any game idea that was disturbingly addictive enough to result in feverish "*Doom* dreams" afflicting the gamers' sleep-patterns needed to be replicated. "That was what I was trying to get back to. When we use Stephen King as a metaphor, this is like the kind of experience we want to get back to. Not this incredibly dominant, machine-gun-with-an-attitude-thing, but more like, 'Oh my God, what is around the corner?' There are all these tentacles and they're all twitching around..."⁷ >>



As well as *The Mist*, one of the early influences was a 1963 *Outer Limit* episode called "The Borderland," which was about a teleportation trip to the fourth dimension. Naturally, everything goes horribly wrong.



QUIVER CREATURE CONCEPT



Some of the first sketches for monsters for Quiver, taking a turn for the tentacled

Tentacled horrors initially freaked out *Weird Tales* magazine readers back in November 1923 when Howard Phillips Lovecraft published his first short story entitled *The Horror at Martin's Beach*, but Gabe wasn't swayed by HPL. "Not really, Marc [Laidlaw] loves Lovecraft but I don't really like him. Now, admittedly Stephen King was inspired by Lovecraft, but I like the Stephen King version of the tentacle horror more than the Lovecraftian version. So we just sat down and came up—in the same way we came up with the name of the company Valve—with a list of things that we wanted it to communicate."⁸ These included the base facility, an opening "journey to work," and a scientist's routine soon shattered by an anomalous alien invasion. With Marc Laidlaw, Valve was just getting to grips with the storyline and the facility itself. One of his first jobs was crafting the storyline, and naming the research facility: "Black Mesa itself...which narrowly escaped being called Black Butte!"⁹

As the story was being fleshed out, Ted Backman's humanoid creations were continuously being sketched, molded out of clay, and briskly turned into skeletal models. The Gonarch of Xen (a.k.a. "Big Momma") was from Ted's initial drawings. These entities were a mixture of happy accidents and figments of Ted's imagination after a concept approved by Gabe, Marc, and the Cabal.

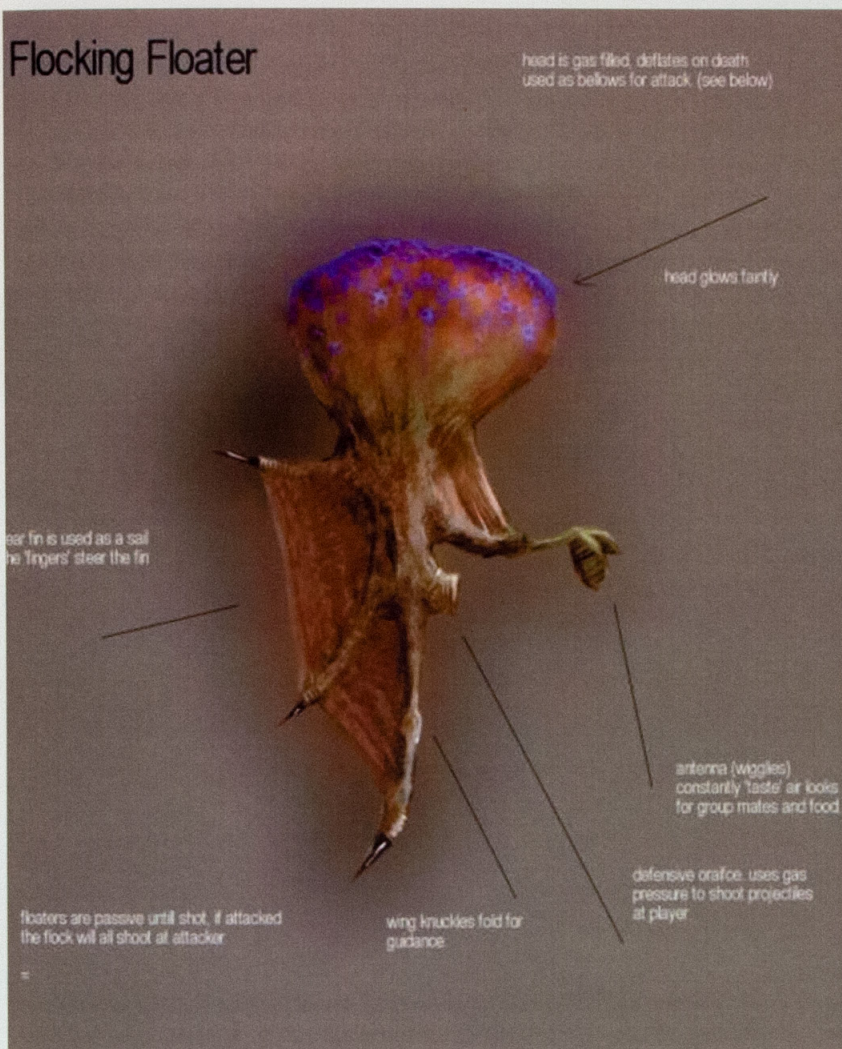
Ted remembers constructing ("and doing the concepts and the behavioral design, the modeling, the texturing and all the animation for the characters that I worked on, too") one monster in particular: "That was actually back when I was talking with Gabe for the first time." Ted's legendary interview actually yielded in-game results: "I showed Gabe a picture before I even knew of the game at all, he just suggested that he wanted to do a game that was kind of like Stephen King's *The Mist*. So I read it, and there were some tentacle monsters in there, so I tried to think of anatomical structures that were interesting and notions that were interesting, and put together something that hadn't been seen before. So, I showed it to him and he said, 'Yes, let's build it.' So it went into the game like that, and I think the geometry that went in was first-shot geometry and was never revised. I built it over the course of a couple of days and it went in straightaway. This was something that just kind of appeared magically on its own: the bullsquid."¹⁰

Ted has another favorite character, this one oddly lacking in bulbous appendages: "I believe the female government Black Ops assassin from *Half Life* was a great character. She was really responsive and fun to play against. I remember the first time we got her into a level that she really worked well in, I played that just for a couple of weeks straight because it was so fun to see her do her thing, and it was such a simple heuristic that she actually interacts with the world environment, if you looked at her and she wanted to run away and if she could see you, and you weren't looking at her, she would shoot you. In which it makes really effective fighting strategies."¹¹

The alien panther design was implemented during this period, and almost made it into the final game.



Flocking Floater



A Stingsail—another alien beast designed to compete with the cacophony of demonic forces Gabe had been scared silly by during his *Doom* playthrough. The bulbous head was subsequently grafted onto the Xen Master, one of the more outlandish extraterrestrials to grace the final game.



"FIDDLESTICKS!" DR. KLEINER FINDS A VOICE

There wasn't a hard and fast rule when creating the more unpleasant parasitical critters in the game, although Gabe explains the methodology behind monster creation. "There is just a bunch of different things that we try. Sometimes we use inspiration from other media, whether it's *The Garden of Earthly Delights* [by medieval painter Hieronymus Bosch], *Alien*, whatever. Sometimes we're just sitting around and we're really tired and somebody comes up with a goofy idea like, 'Why don't we put a giant testicle on a 20-foot-tall armored spider' and... Big Momma is born. And sometimes we have a gameplay idea, like the barnacle, where we know we want to be able to constrain player moments, and then the visual design of it falls out of the gameplay design, so we don't seem to have come up with a simple way of turning the crank. In terms of visual originality, Ted Backman did some great stuff, some really inventive stuff on *Half Life*. He had his way of thinking about the problems of designing a family of creatures that seem believably to come from a single ecosystem. He had a bunch of source art that he used to look at animals and try to figure out why some things look like real creatures and some things look like fake aliens, then try to come up with a set of rules that he could apply, so we didn't have stupid looking creatures."¹²

It wasn't just the enemy entities that Valve was creating and fine-tuning. They populated the Black Mesa research facility with various guards nicknamed "Barney." Some have speculated these were called that in homage to a giant purple dinosaur due to their slightly dopey demeanor, but this wasn't the case. They were called Barney in homage to Don Knott's foolish oaf, Deputy Barney Fife on *Mayberry RFD*. Then there were the numerous white-coated Einsteinesque scientists spouting all manner of mathematical mumbo-jumbo. These were the other main friendly characters in the game, and Valve knew they needed the right style of voice to add a sense of believability and touches of humor. Marc Laidlaw knew just the guy down in San Francisco.

"Most of the voices for the *Half-Life* scientist characters—you know, the quintessential *Half-Life* scientists—were done by Harry S. Robins, who was an old friend of mine from San Francisco. The first time I came up to Valve, and saw the scientists in there and they didn't have voices—they didn't talk or anything—and I said, if you ever get voices for these guys, I know just the person for it. He used to leave these crazy answering machine messages saying [mimics Kleiner] 'In the infinite reaches of space you have reached the answering machine of...' "¹³ >>



A quick sketch by Gabe Newell of the original Rhinoscar logo and mascot, nixed for the company name Valve.

Bill Van Buren [producer, designer, and another Microsoft convert who, according to his bio, “signed on for a short stint to help ship *Half-Life* and found himself unable to leave”¹⁴] had spent weeks listening to other candidates for the scientist role. He takes up the story: “It was funny because we were going through this process of listening to tons and tons of Nordstrom voice commercials and trying to figure out who was going to do these parts and Hal had never been mentioned. . . . Marc had seen him just before he moved up and said [to Hal] ‘you have got to send this audition tape so that other people can hear your voice.’” Marc interjects, “And he never did, he never did, and we’re like right down to the wire going to hire someone, and I got Hal on a conference call and I got a bunch of people in the office, and I said ‘Okay Hal, we are all here,’ and he said ‘Well, what would you like me to say?’ and everybody shouted ‘That’s it!’ He had done some acting but he is not really a voice actor.”¹⁵

Hal would become an iconic sound trademark in the final game and reprise his role as Doctor Kleiner in the sequel. However, there was no need to voice the game’s hero, as Marc Laidlaw informed the now-defunct website *Atomic Half-Life* back in 1998: “If we didn’t get exactly the right voice for Gordon, it would continually jar the player out of the game—that slightly wrong voice would just grate on you, the way Duke’s voice grates on some people and eventually drives them out of the game. Gordon is not really the kind of guy who’d quip and wisecrack every time he killed something, so I’m not sure exactly what interest there would be in hearing him speak.”¹⁶

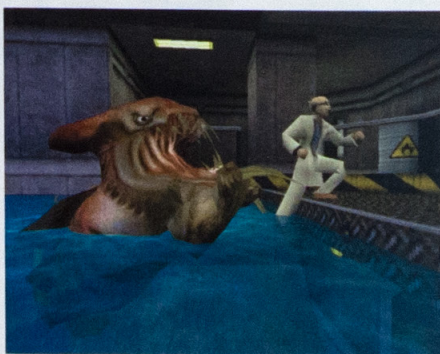
While voices and scripts were created, textures and levels built, and weapons developed, Valve’s programmers began to bring the game to life, using id’s *Quake* source code.

A SKELETON CREW

The code was extremely simple and versatile, and it took only two weeks to get something functioning in the game. Says Gabe, “There was a tremendous advantage to working in an environment that had tools up and running, with people from the community [who had already worked with it].”¹⁷ Erik Johnson, one of Valve’s project managers, inspected the source code in the early days. “It originally started with the *Q1* license and then some pretty significant changes that were rewritten. Probably the biggest single part is the software rasterizer that Ken Birdwell did most of the work on so we have a true software renderer. We’re always very careful to make sure that the hardware and software rendering pipeline was functionally similar so you could do the same things in software as you could in hardware. And at the time that *HL* was released, that was something that was really important. Obviously all the game logic was from scratch, new for *HL*. Most of the renderer has been changed in some significant way, the networking was completely rewritten. All the UI was redone, there’s some pieces of it that aren’t really worth rebuilding, but if we could build upon most of the stuff with *HL*, we’ve done so.”¹⁸

One of the aspects Ken Birdwell is proudest of is the skeletal animation system. Due to the limited memory of typical PCs at the time, conventional animation methods simply would not work for the amount of character animation the team wanted to put into the game. GameSpot continues to explain: That’s where Ken Birdwell, a man whom John Guthrie calls a “genius,” comes into the picture. Birdwell, who rides a Harley and used to design software that scanned a person’s foot and created custom shoe insoles, was behind the concept of skeletal animation in the game.

“I wanted to see more fluid animation, but we didn’t have enough memory,” he explains. “We needed to compress down the animation by a factor of 10 to 100. Skeletal animation was the answer. We actually create bones and joints for the characters.” As characters walk around in the environment, they have a virtual skeleton that creates the movements seen on screen.¹⁹



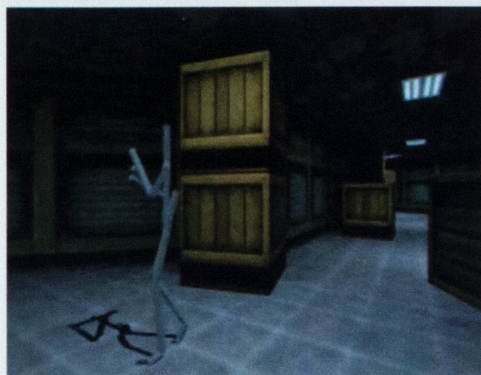
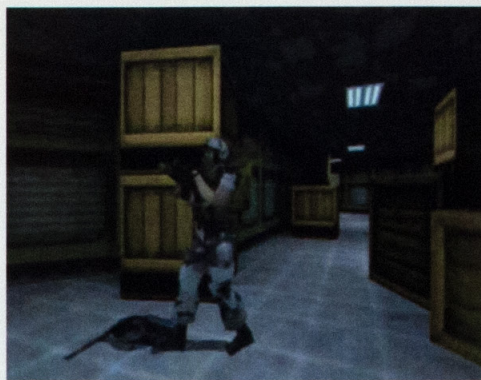
Scientists from early versions of the Black Mesa facility (the 1997 E3 demo) hinted at the abuse they would take in the final game (a press release picture of an Ichthyosaur leaping to consume a scientist).

The skeletal animation system also proved useful in solving the problem of making mouths that move on the characters. Newell is particularly proud of this achievement. "I remember when Ken and Kelly [Bailey] had been working in secret to get the mouths to move—a really hard technological problem. They kept it quiet because they wanted to impress us all when it was done. It's an amazing feeling to think that something really innovative and cool is going to come out of the guy in the office next to you." To make the mouths of the characters move in the game, Birdwell and Bailey actually created bones in the faces of characters, which in turn are used to manipulate the movement of their jaws. Guthrie is still dumbfounded by this achievement. "If you ever wonder who goes to college when he's 13, it's someone like Ken Birdwell. He solves really hard programming problems."²⁰



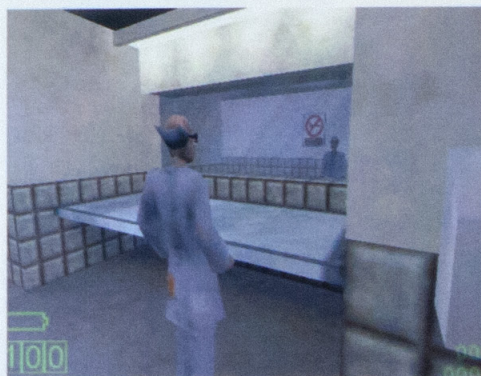
Another major area of innovation for Valve was in artificial intelligence. Although a lot of games promise advanced intelligence, Valve spent months developing proprietary technology that would actually make enemies work together in packs and flocks. Dave Mattson, a webmaster at the popular *Half-Life* fan site *halflife.org* remembers when Gabe Newell gave him a demonstration of the game's AI. "Gabe showed me this map that only contained four houndeye enemies," he remembers. "One of them quickly assumed the role as leader and stood on his lone hind leg and watched our every move, looking for signs of aggression. The other three creatures cautiously began exploring their surroundings—sniffing the floor and licking bloodstains. It was incredible."²¹

Quiver's development continued apace. "We also put in stuff that we just thought of as game features that we ended up taking out, like third person [views]...death camera...following cameras, things like that. We were putting them in because we had the little list of features we wanted in the game, but then they ended up taking away from the immersiveness. After a while we found that we didn't want to see Gordon, we wanted to be Gordon."²² >>



The skeleton animation shown in *Preliminary Findings*, and the joints on a Panther enemy

Valve's technology also allowed for reflective surfaces, as this early test screen shows.



THE LAMBDA LABEL

In the months leading up to the official announcement of *Half-Life* by publisher Sierra on May 27, the codename of *Quiver* was abandoned, and another series of meetings, mimicking those called to pin down a company name, were launched to name the game once and for all. The name change officially "fell out of a pretty straightforward conversation about what we wanted to tell people about the game. We looked a whole list of existing game names and we tried to figure out what people were trying to communicate with these names, how people would respond to those. We wanted to communicate the science-fiction feel, the sort of...more mature sense that we were going after a game that was not just a shooting gallery. There was going to be a richer experience and a more thought-provoking one...and so *Half-Life*. We thought about that, and that seemed pretty cool, and we tried to look at *Half-Life*, *Half-Dead*...nuclear explosions, you know, danger, we sort of looked at all these things and said, yeah, we like that a lot. We went through hundreds of different names, *Half-Life* was one that sort of stuck out fairly quickly, and then after we sort of lived with it for a while."²³

Gabe then presented the game name to the publisher. "Sierra hated the name at first, although it's impossible to find anybody at Sierra who agrees with that now, but they told us it was a horrible name.... They said they liked *Quiver*, and we were like 'No, that's a codename.'...I think it's just one of those things where you just get attached to a name and...now, of course, everybody there loves the name, thinks it's the best name of all time...."²⁴ Gabe had a particular criteria for choosing the name: "We tried to establish criteria (needed to be evocative of the theme, needed to avoid clichés in the genre, should have a corresponding visual mark), we brain-stormed some ideas, and then picked *Half-Life*."²⁵



One of Sierra's earliest adverts for *Half-Life*, sporting both the Lambda logo, and a scary baby head



Two examples of early advertising. The first shows "Big Mama" and a variety of screenshots from *Preliminary Findings*. The other (facing page) introduces the female assassin, who didn't make it into the universe until *Opposing Force*.

Subsequently, the iconography evolved. This came to Valve much more easily than the name game. The two most recognizable symbols of *Half-Life*—the lambda logo and the crowbar—were agreed upon. “Lambda is the inverse of *Half-Life*. We were trying to think of some sort of graphic we could use, a logo, and we just looked up the formula for calculating half-life, and there was a lambda, and Greg Coomer said, ‘Why don’t we just use lambda, it’s a great visual element, let me go do a couple of treatments of it,’ and everybody saw the treatments and said, ‘Yeah, that looks great.’ [A year later], we tried putting it on the box and seeing how it looked there, sort of melting it into the box, the original orange and silver box that we did... that’s how we got the logo.”

The logo wasn’t just for show either; the designers “hid” various lambda decals on the scenery throughout the game, usually near a power-up. The crowbar, Gordon’s trademark battering device was partly “whimsy. Once again we were trying to tell you something about the character of Gordon Freeman... more naturalistic... if you were in this environment, what would you have? It was definitely done in the context of other games in the genre. People are pretty attuned to these things, and what we’re trying to do is tell you something, it makes a promise to you about the rest of the game, having a sense of humor and also having a certain kind of style.”²⁶

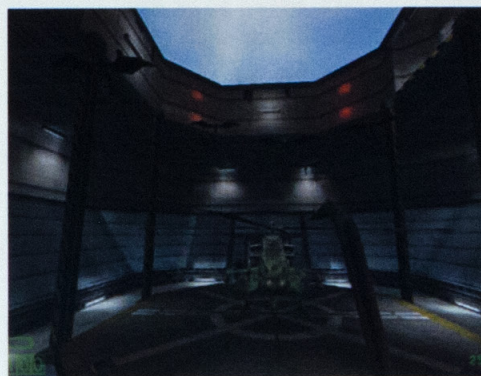
The final naming and iconic hurdles had been overcome. The source engine was working. Now it was time to develop the game.

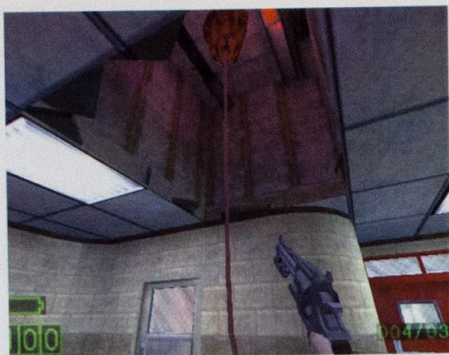
FRITO PIES AND LONG HOURS

Steve Bond and John Guthrie have particular memories of their first year: “Yeah, Frito pies, and long hours.” And practical jokes. “One of my best memories,” John says with a chuckle, “was when Dario would take a break and play *Quake*. He would get frustrated on a problem [in *Half-Life*], then he would want to go slack off, and anytime we were trying to do some work or leave the room, he would start playing. So Steve and I did this elaborate system to either sabotage his network connection down to just bare bits, lagging him, or we would set up his ICQ batch file with *Quake*. He would type it to let it run, but it would also send a message that said ‘I’m Dario, I’m slacking and playing *Quake*’, so someone would always walk in five minutes after he started and say, ‘Hey, what you working on Dario?’ He’d have to exit the game quickly. Mike always walked in with a smile, Mike would leave, and Dario would go back to *Quake* and say ‘what happened to my ping?’ We are all on a really small connection so it was easy to sabotage.”²⁷

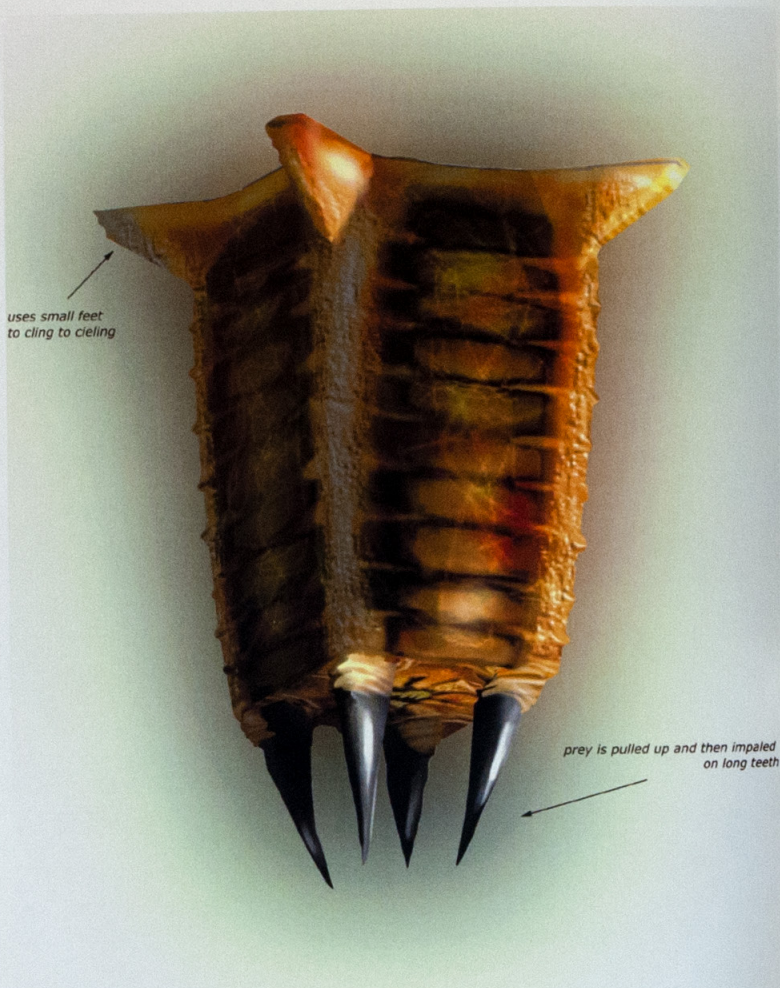
This was a tumultuous time at Valve, as the team systematically tried to lower their stress level and raise their expectations. Especially for a “B” level game. “There was a certain amount of tension within Valve around that [moniker], because we always kept saying ‘Okay, we don’t have to be [an ‘AAA’ title]... it was the lie that we were telling ourselves.” Gabe again, “Every chance we had, we raised the bar in terms of what we were trying to do. I think we were trying to kid ourselves that it was a B level game in terms of how much stress and anxiety we were giving ourselves, but every decision we made was about making it a better game and a bigger game and a more ambitious game.”²⁸ >>

Other iconic designs were chosen at this time, including a scrapped HUD image that was close to the final HEV suit display. Note the green and yellow shades in these early shots, as well as early versions of the Crossbow and RPG.





The Barnacle, one of the more ingenious monsters invented during the restructuring period, and the first implementation in the game



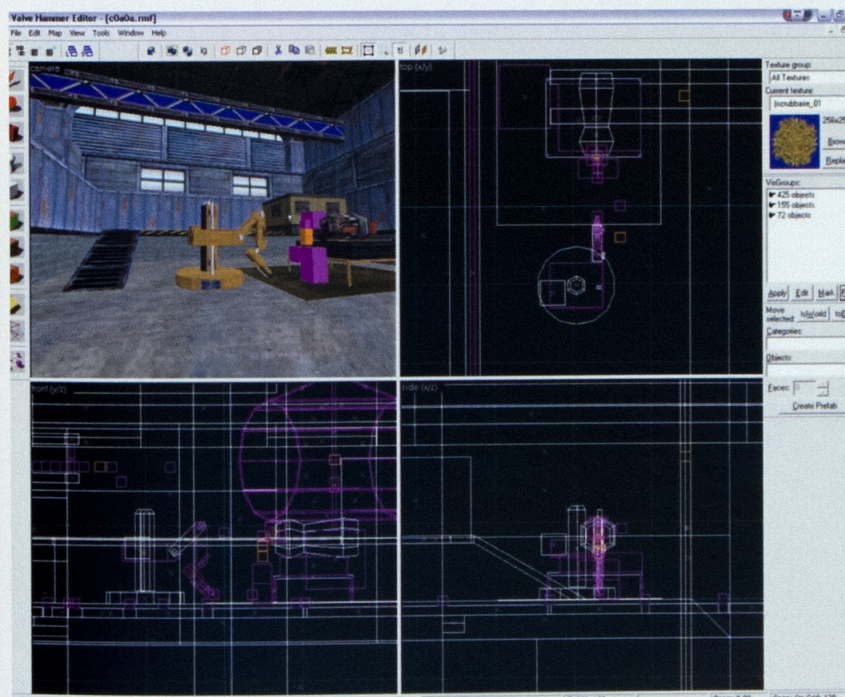
A "shiny robot" standing in a nondescript corridor. This uninspired design forced the team to rethink what they were creating.

Harrington meanwhile, wanted to ship a product as soon as possible, as grand schemes for blockbuster games can sometimes result in bankruptcy, especially for a brand-new developer. "Valve set out to do a class B game and not a class A game," says Michael Abrash. "The model for starting a company, and the one I think Gabe and Mike followed—Carmack would tell you this in a second—is to just ship something." As Abrash explains, if a company sets out to do a killer game, it gets stuck "behind the curve" and ends up being too late with the product, which generally turns out to be a B game (or worse) anyway.²⁹

Valve's first E³ was the perfect bellwether for receiving criticism from the press, and a demonstration of their year-long effort was shown in Atlanta on June 19–21, and a month later in July, Valve hired Ben Morris, creator of the Worldcraft development tool. At the show, the buzz *Half-Life* created was of interest, and the game garnered a couple of "best in show" awards, as the media picked up on the different tack Valve was trying. The environments were reasonably enticing, but by the time the previews came out, much of the game's accoutrements were lost in a sea of other titles. *GameSlices.com* had the first preview up just after the show, and remarked "We've heard that the animation of one of the characters in the game has more frames of animation than all of the cells in *Quake* and *Duke Nukem 3D* combined."³⁰ *CDmag* championed the lighting, "The demo version of the game had rooms that showed off its ability to mix multiple light sources, and though it doesn't necessarily enhance gameplay, it's still impressive."³¹ And *GameSpot* was one of the first to notice the 16-bit color engineering improvements. "*Half-Life* supports a dazzling 65,535 colors without hardware enhancement!"³² However, it was the assertion that "Valve's compound body and skeletal system means that monsters can be very complex, with up to 6,000 polygons, (compared to the couple-hundred poly range for monsters in traditional mesh-based games),"³³ that met with most derision, as in-game application for this feature wasn't entirely feasible.



John Gutrie



Various elements from the train ride introduction to the game, one of the only areas to remain more or less unscathed after the reworking, seen both in-game and being worked on with Hammer, Valve's world-building tool

THE HALF-DEATH OF HALF-LIFE

"We did a lot of growing up in public," admits Gabe Newell. When Valve and Sierra jointly announced the game in May 1997, they released two screenshots that bear little resemblance to the images in the final game. And that's a good thing. "The screenshots we put out when we announced the game were terrible," concedes Newell. John Carmack at id Software remembers that he was still very skeptical about *Half-Life*: "For whatever reasons, *Half-Life* was the license we paid the least attention to during development. The early showings and screenshots never really got us very excited." The team pushed forward with development in hopes of getting *Half-Life* ready for the holiday season. As Scott Lynch remembers, "The big competition last year was *Quake II*, and there was a lot of push to get our game out there to go head to head with it."³⁴

It wasn't to be. By August of 1997, Valve recognized that finishing the game for the holidays would mean making major compromises on the product. "We realized that to make Christmas, we would have to give up a bunch of stuff we wanted to do," explains Newell. "We had to make a decision about what way we wanted to go, and it was a scary decision. We're a self-funded company, so when we pay people's salaries, I write a check out of my personal checking account." Money wasn't the only concern. The relationship with Sierra Studios was also conceivably at risk. *Half-Life* was supposed to be its biggest game of the year, but it wasn't going to be ready. The massive wheels of promotion and PR had already started to turn.³⁵

In September 1997, two months before the expected release date, Valve threw out the previous year's work, and started again, almost from scratch. ■



The cartoon-like Black Mesa is dead. Long live realism.



Freedom for Freeman

03

“In reality, *Half-Life* got delayed because of *Half-Life*.” —Ken Birdwell

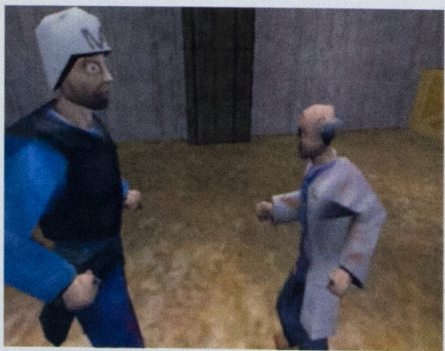


►► PRELIMINARY FINDINGS AND SUBSEQUENT FAILURES

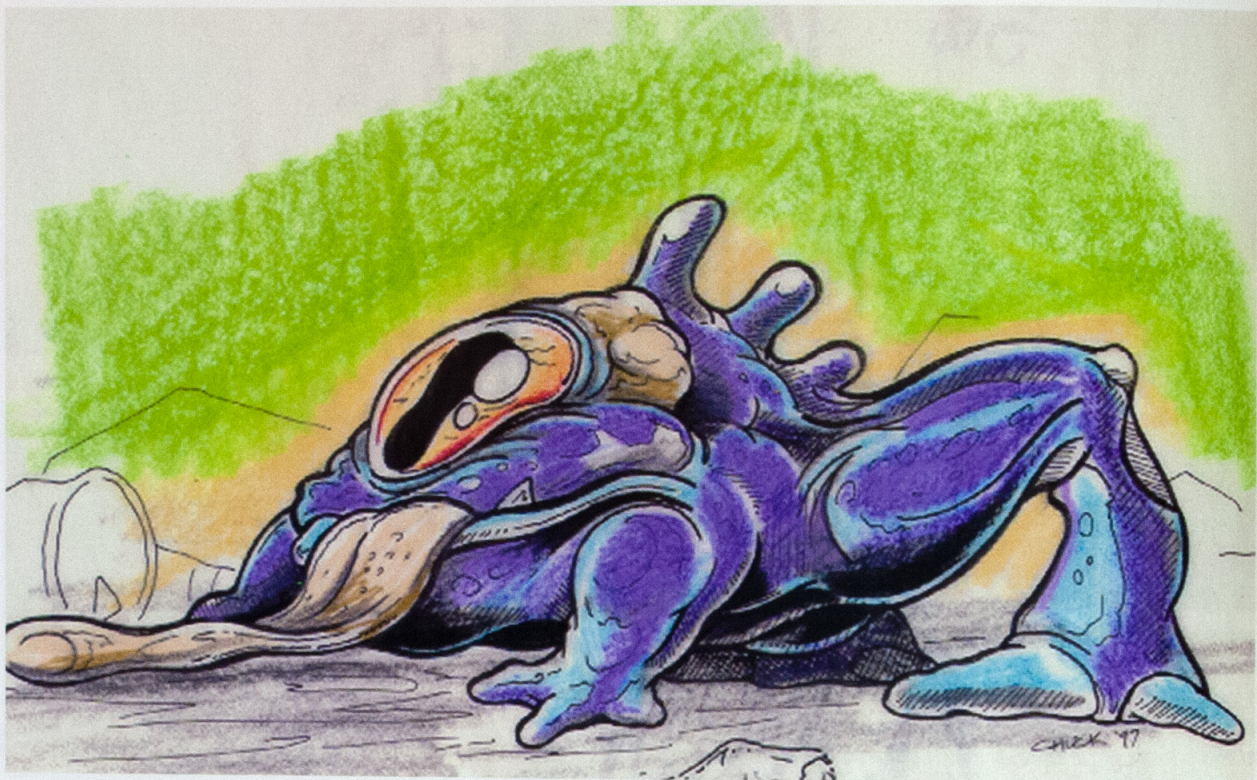
Speaking in November 1998, Ken Birdwell remembers why *Half-Life*'s first iteration almost completely collapsed. "We had a lot of great technology," he explains, "and it would have been a really competent game, but it wouldn't have gone over the edge anywhere. In the middle of last year [1997], we got some inklings of what we really could do with the game, and by late last year, we had seen what the game should be—we just had to do it." Not surprisingly, this "voyage of discovery" (as Harrington describes it) caused massive turmoil on the project. "The net result is that we threw out just about everything," admits Birdwell. "All the AI was gone, and we gutted the levels. In reality, *Half-Life* got delayed because of *Half-Life*." In Birdwell's estimation, what players are now experiencing on their PCs, "is really *Half-Life 2*. It's an incredible game."

"I don't think we wanted to admit to ourselves how much work we had left to do on the content side of things," says Newell, fessing up about the delays. "It's extremely embarrassing." Newell is cognizant of what Valve put Sierra through during the delays. "Sierra has been pretty supportive, even though we've screwed up their quarterly [financial] forecasts for five quarters," he says with a shy laugh.¹

"It was one of those weird things where we sort of knew what we wanted to do and we got to a certain point and said, 'We are totally not succeeding, whether it was gameplay or art,' and then we threw it away. There is a point where you have to give yourself permission to say, 'Ah, we f***ed up ' because we needed to [reach] the point at which we said, 'It's OK to throw stuff away right now. We don't have to keep trying to tweak Ivan the Space Biker.' We could just start over. And then people say, 'Oh, my god; that pushes up my schedule by three weeks if I have to do that.' Fine, let's get back to what we are trying to do, as opposed to what we can do on the schedule. So, it was giving everybody permission to admit that the first generation of stuff that we created wasn't going to be good enough for us to be happy with it. It was not a fun time."²



Footage from *Preliminary Findings* showed levels that were concurrently being thrown out, following a pair of attack helicopters through a desert, and enemies being redone. Only the skeleton animation and AI was intact from this period.



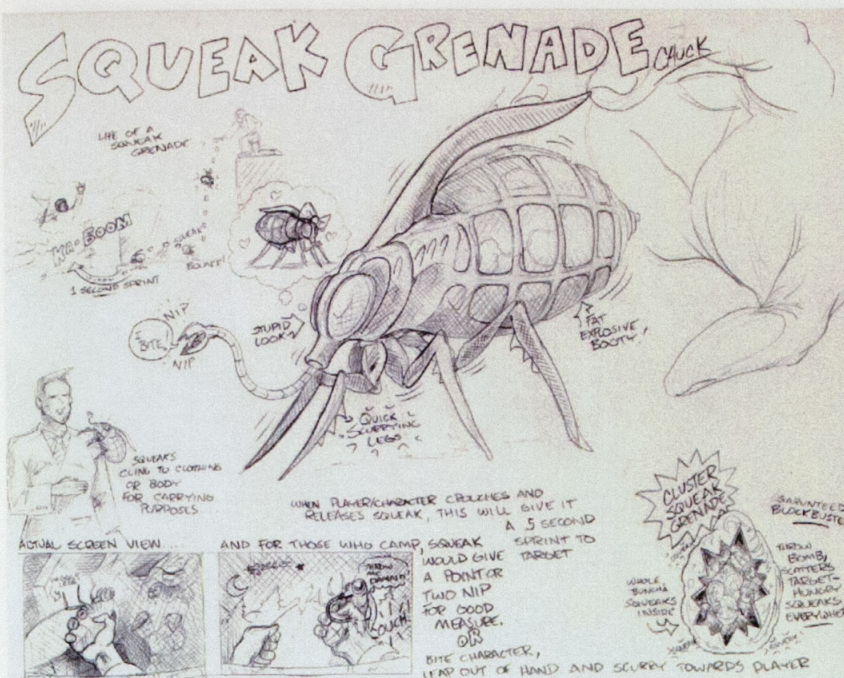
MR. FRIENDLY'S FINAL CURTAIN

Marc continues: "A lot of the art and models had a cartoon-like quality to them early on, and I remember the team had reservations about this. Because there was a level of stylization, I wasn't quite sure how to take those limitations and make something unique out of them. Through the reiteration process, these problems were cleared up and the models went through immense overhauls as people got better at creating them. And the levels got built more in line with input from art. All the zones just got better as people [worked on them] longer. Part of it was recognizing that the game wasn't good enough. It was back to the drawing board; we charted out the whole game in detail on paper and then gave out assignments. So the level designers worked on rebuilding the various locations, a lot of which had been around for a long time. Decisions were made about which ones should become totally redone. A group of us got together and talked through a game, from start to finish. A lot of the ending was left undesigned for a long time, which was why it ended up the way it did. But then we started slowly seeing the stuff we wanted ending up in the game, so that I think gave us a lot of confidence in the process."⁴



The Snark (originally dubbed "the Squeak grenade") and the Chub Toad; two hand-held monsters designed to be carried and used as "grenades with legs" by the player. The Chub was axed, while the Snark made it.





One specific example Marc cites of fleshing out an existing (but unremarkable) idea into a stand-out moment was the tentacle silo: "There was a silo and there was a plan that there was going to be a monster, some form of a tentacle that was going to grab a security guard or scientist and kill them. And it was just a simple thing where you went in there and pushed these buttons on the console and fired the rocket launcher and part of the engine burned [it] to a crisp. This just seemed too simple. So when we started to take it apart on paper, we had all these extra paths. Let's basically put all these obstacles here; let's break these down into components. Let's create all these rooms you've got to go through and all these puzzles you have to solve. They all feed back to the main puzzle so that when you finally push those three buttons you've done so many other things leading up to that moment, it's going to be a lot more significant at that moment."⁵

Then there were the entities that didn't fit the new style of the game, or fell by the wayside. Marc again: "There are always a lot of ideas that don't make the final cut. The chum toad was a bait monster, something you could throw to distract other monsters; but we ran out of time to develop the concept of bait in *Half-Life*. At some point you have to focus your resources on polishing fewer things, rather than having lots and lots of things that are all equally unpolished. I was especially sad to lose kingpin (a tall bulbous thing that stood on three spindly legs; it looked like a bowling pin and dragged some kind of slimy tentacle behind it), Mr. Friendly (the raw looking thing that crawled around like a biological refugee from a Survival Research Labs experiment, with its posterior elevated) and the stingsails (an airborne alien menace)...even though I really don't know what they would have done as monsters. In some of the concept art for Topside (what we often called the 'Surface Tension' area...up in the army barracks), you can see the kingpin standing in the middle of an area. We were going to have some soldiers tormenting it, and then it getting free and destroying them (with the player's help). I'll always be able to look at that sketch and imagine what might have been."⁶>>



The Alien Slave (or Vortigaunt) was another early offering that transformed into a final enemy character, albeit in a weakened state. Shown is an early pencil sketch, then colored in with chosen skin effects, a model in mid-design, and a thinner in-game model. Dhabih Eng's first commission (last picture) was this creature.







One of the action cinemas in *Preliminary Findings* was a Panther ravaging a scientist after the boffin was pushed around by a cartoon version of Barney. Although scientist abuse continued into the final game, cartoon Barney and the Panther were removed.

GOING CABALS OUT

Meanwhile, Steve Bond began to retool the AI system, as this was next in line for an overhaul after the level design and character models. "One of the problems with the game was that the AI system wasn't working," states Steve. This was, as you'd expect, a big problem. "It was *Quake*'s AI system with some bits added on, and so I got permission from Ken [Birdwell] and Jay [Stelly] to throw the AI system away. I worked for three months just on the [new] AI system—obviously with their help—and when the AI system was redone, I saw it running and saw the test cases. The worse-case scenarios were not only working, but actually working really well—soldiers were running around doing what their jobs were."

It was at this point, in early 1998, that Steve "personally felt like, I knew that [the game] was going to make it, this is going to be pretty cool. I saw all these crazy drawings coming out of the Cabals, levels being built which was pretty much all we could do at the time. I personally thought, 'OK, now all we have to do is build it'. I didn't know much I was going to be working for the next several months, but my morale was pretty good by then."⁷

Dave Riller and John Guthrie remember the fear. "Making *Half-Life* as an amateur mapmaker was sort of like joining a band and trying to write an album when you can barely play your instrument. It was a very scary and intense trial-by-fire." John elaborates further: "It was really scary because it was the company's first product, and some of us were learning how to be designers. We were just trying to figure out what it meant to make a Valve product. That first year was sort of like paying your tuition, really. We cut our teeth on the first year, we tried, [and] we made a game. It was a bad game, but we had a game to evaluate. It was a little disheartening to throw away pretty much most of your work that first year, but we realized what we needed to do to succeed."

The rebirth didn't just fall on one star game designer, either. "Valve's Cabals, those were all responses to our efforts, and so it meant we were really good at iterating and evolving." The game was now completely different from the unloved first gestation. In fact, according to John, "only the entry level was not too terribly different in pure geometry terms."⁸

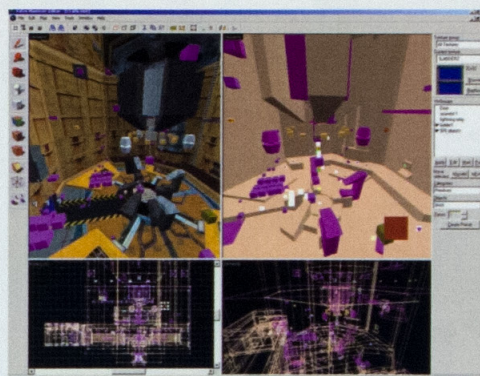
The team's other concern, aside from the completion of a necessarily enthralling game, was a protagonist that gamers could identify with. So they created Ivan the Space Biker.

IVAN THE SPACE BIKER, MEET DYSON POINCARÉ

"Ivan the Space Biker was the name for the first version, yeah..." Gabe admits, rather sheepishly, regarding the square-headed cyber-lumberjack that would eventually transmogrify into Gordon Freeman. Other character designs were whipped up, and one caught Gabe's eye. "We were always trying to be somebody that was a little more identifiable; this guy went to college." Unlike say, Duke Nukem. "He doesn't have a loincloth, he doesn't talk, there is always that idea of transparency." This was the antithesis of FPS game characters: thoughtful, introspective, wiser than his 27 years. He was the first MIT graduate to bludgeon sharp-fanged aliens into squishy matter. Slimming down Ivan was the first step in a series of retooling. "We went through a bunch [of iterations]. Ivan the Space Biker was mainly for screenshots and for multiplayer initially so you could see what the character looked like."⁹

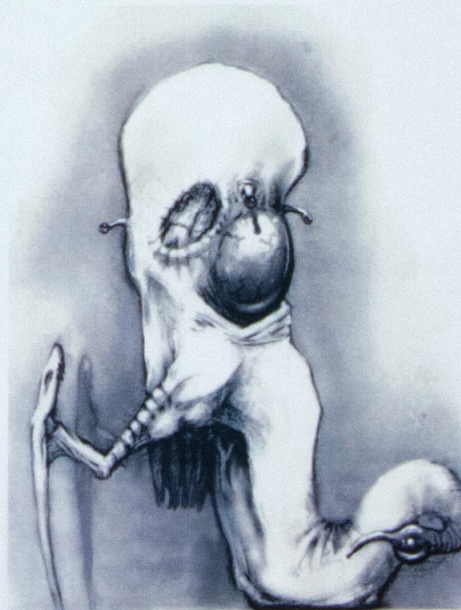
Marc Laidlaw is quick to point out that Ivan was never seriously considered as the star of the show. In fact, the name wasn't even official. "Ivan the Space Biker was just something [Valve] called the character in those hilarious early screenshots, not that 'Ivan' was ever a name for the character. Our viewpoint narrator was unnamed when I got here. We went round and round on names for the character, but I thought it should evoke some famous scientist. I mentioned Freeman Dyson [professor of physics at the Institute for Advanced Study in Princeton, now retired]¹⁰, one of my heroes, and smushed his name together with another famous mathematician, and proudly blurted out 'Dyson Poincaré' [after the French mathematician Jules Henri Poincaré, notable for his work on differential equations and celestial mechanics]. Gabe countered that with the far more reasonable 'Gordon Freeman.' And that was that. We were all relieved to have a name and be able to stop thinking about it. Like many important game design discussions in those days, this all happened in Gabe's car en route to a favorite Japanese restaurant."¹¹

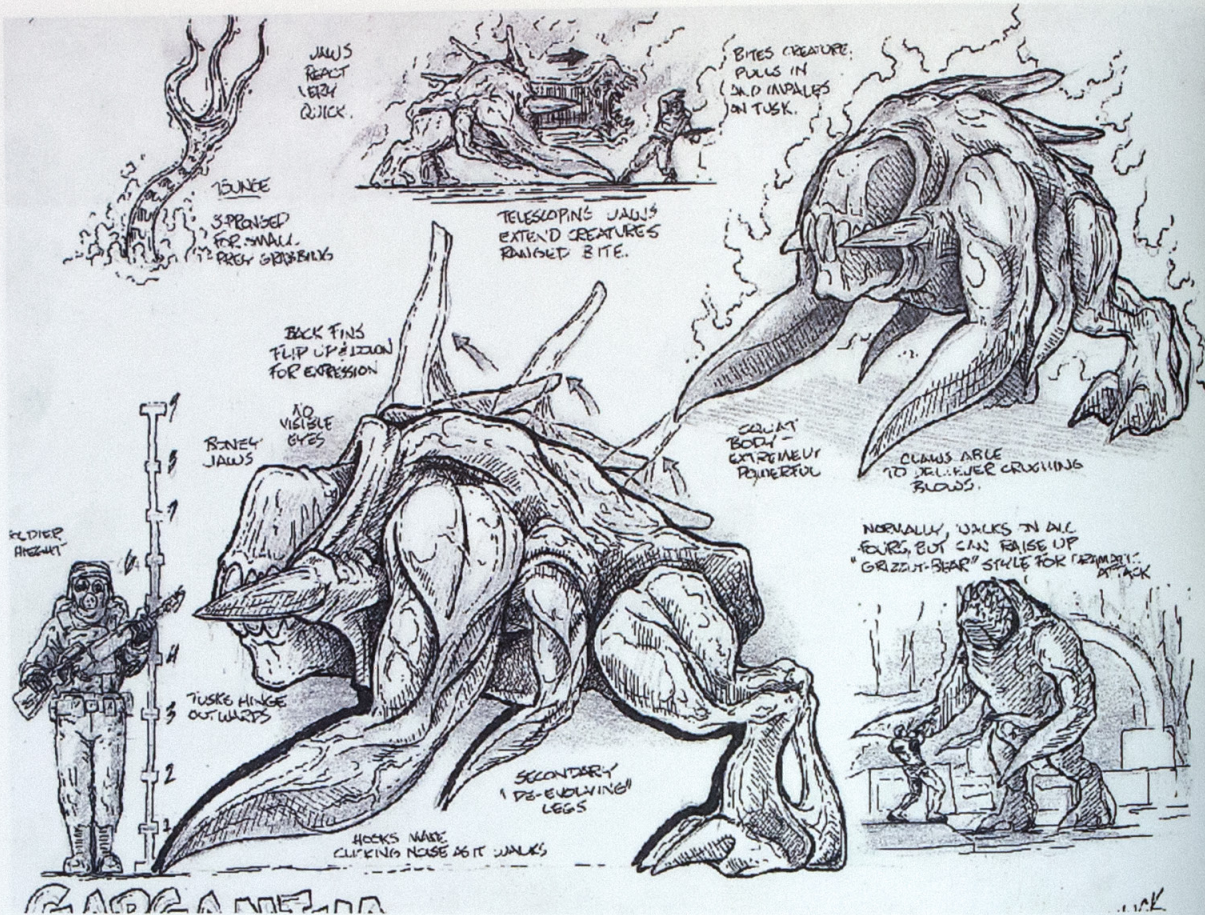
Despite internet conjecture to the contrary, the look of Gordon Freeman wasn't based on anyone in particular. Marc Laidlaw explains: "Chuck Jones, who actually [built the Freeman model], looked a lot more like Gordon at the time he did it than I did. Gordon was definitely a reaction to Duke Nukem and the franchise characters at that time. Valve wanted more social interaction than shooting nameless aliens. You are a personality in this laboratory; other people know who you are and they talk to you as if you already know what you are doing. That was a conscious thing, having all the characters in the lab treat you as if you know exactly what you are doing and you're totally competent, but then have the player sitting there going, 'I really don't know what to do.' So that when something goes wrong, you genuinely feel like it went wrong because of something you've messed up. That's always been and remains one of our things that we have fun with: that difference between what the player knows and what the rest of the world thinks that you know."¹² >>



This is the test chamber of the antimass spectrometer.

Another two of Ted Bachman's disgusting (and unused) creations, the freakish Sactildiae Nefariousium, and a cloven-hoofed monster







The Gargantua was an amalgamation of two designs, both stemming from the earliest sketches. Shown is a four-legged approach with different attack possibilities, then a raw untextured image was created of that, then a bipedal version. The upright Gargantua survived, and was textured after a color palette was narrowed down to the final bluish scale tinge.





Doctor Gina Cross, Gordon Freeman's supposed wife, was the hologramatic image for the game's Training level.

GORDON'S GEEK CHIC

It wasn't until the end of development that a recognizable Gordon even appeared, "because there was no point where you would really spend time looking at Gordon Freeman [in the game]," remarks Marc. "What he looked like in the end came down to [the fact] we needed a new multiplayer model for him, and he needed to be on a box. Chuck Jones was doing the model for multiplay and Dhabih Eng would be doing art based on that and full boxes and cover magazines, and Chuck did a bunch of magazine covers. So it's something like we had to bear down and create a visual representation of Gordon Freeman."

There was a memorable moment during a load screen wait "that had Gordon on it. Some of us went, 'That shouldn't be there' because we didn't want to put it in a face and let you look like it."¹³ But the decision was made, and Gordon was born. "We didn't really nail Gordon's look," Gabe recalls, "until [Dhabih Eng] did an illustration for the box art before he even worked at Valve. He did the inside leaf of that box, which had the face in the corner." Once the bespectacled HEV-suited Freeman was rounded out, the team was happy. "We have got an image of Gordon that we all like. It was a process of iteration, and then our favorite one is this big banner poster that Dhabih did...with Black Mesa's corridors in the background and the guys, and that's the one that we all look at for the bible image of Gordon."¹⁴

The other, overriding reason for a late lockdown of Gordon's look was the commitment Valve had to the first-person viewpoint. But this wasn't always the case. According to Marc, Valve was torn between using or removing cutscenes during development. "A lot of times we couldn't figure out how to cope without [cutscenes], and we pictured how we might start the game where you're actually watching Gordon Freeman and he's getting on a train and he's going to work. I remember some arguments over this. But for the beginning of the game, we never had a model for Gordon Freeman where he wasn't in his hazard suit. And we would have had to make another model for him in that scientist outfit. And we just didn't have time. And so, at that point, we're like, 'We're going to totally commit to doing this with no cameras.'"

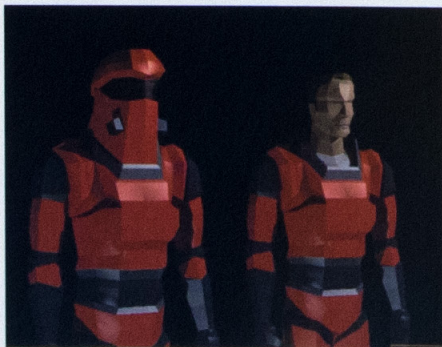
The biggest hurdle to overcome was the teleport disaster sequence, which begged to be shown in third-person. "That was the most we could ever imagine wanting to do in cinematic sequences; we had to figure that entirely out without using a camera. We then figured 'OK, if we could do this, we can do anything without a [cutscene] camera.'"¹⁵ After it was agreed that the camera should never leave Gordon's forehead, it freed the team from referring to a rigidly scripted series of events. >>

THE FACES OF FREEMAN

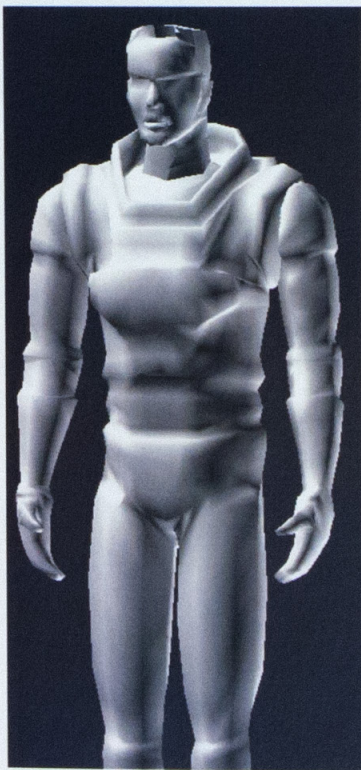
Gordon Freeman has undergone extensive makeovers during his character development. The evolution of his many guises is revealed here:



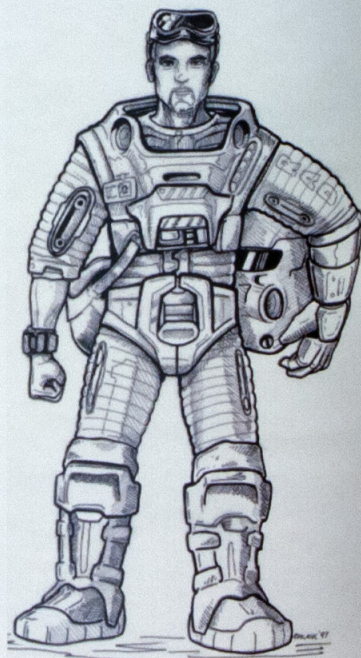
Ivan the Space Biker; quickly removed



The facial features of Freeman are first sculpted in this rough character model.



The earliest untextured model of Freeman, before the HEV suit was complete



An early space-suited character, lacking the HEV suit, but with the goatee



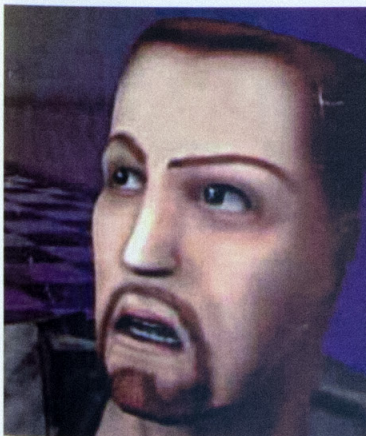
One of the first iterations of Gordon in an HEV suit, with shades instead of glasses



The more recognizable Gordon Freeman, as a multiplayer character model



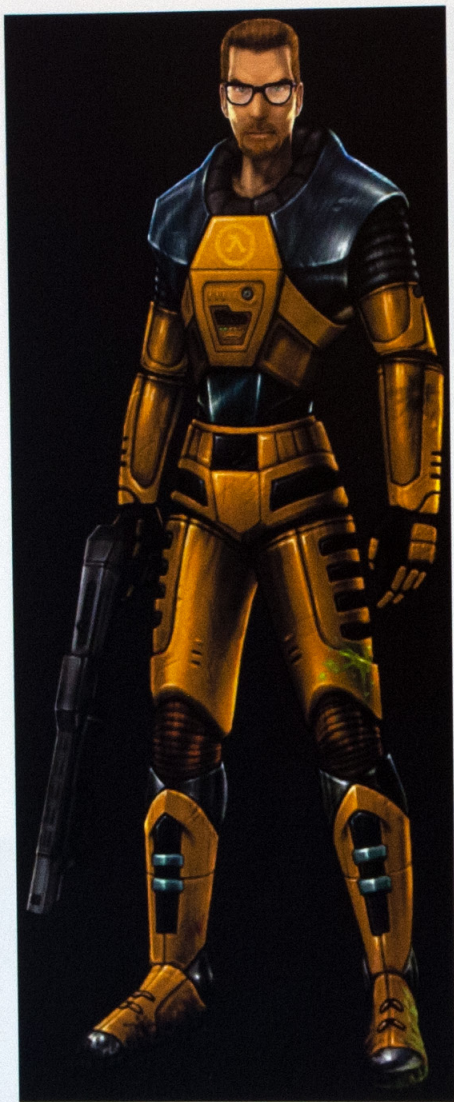
Gordon's in-game model gains glasses and an orange HEV suit instead of red.



A red rendition for Gordon in summer 1998's *Inter Action* magazine, mimicking the first box design interior

Dhabih Eng's inside box art cover, the first time the team was satisfied with Gordon's look

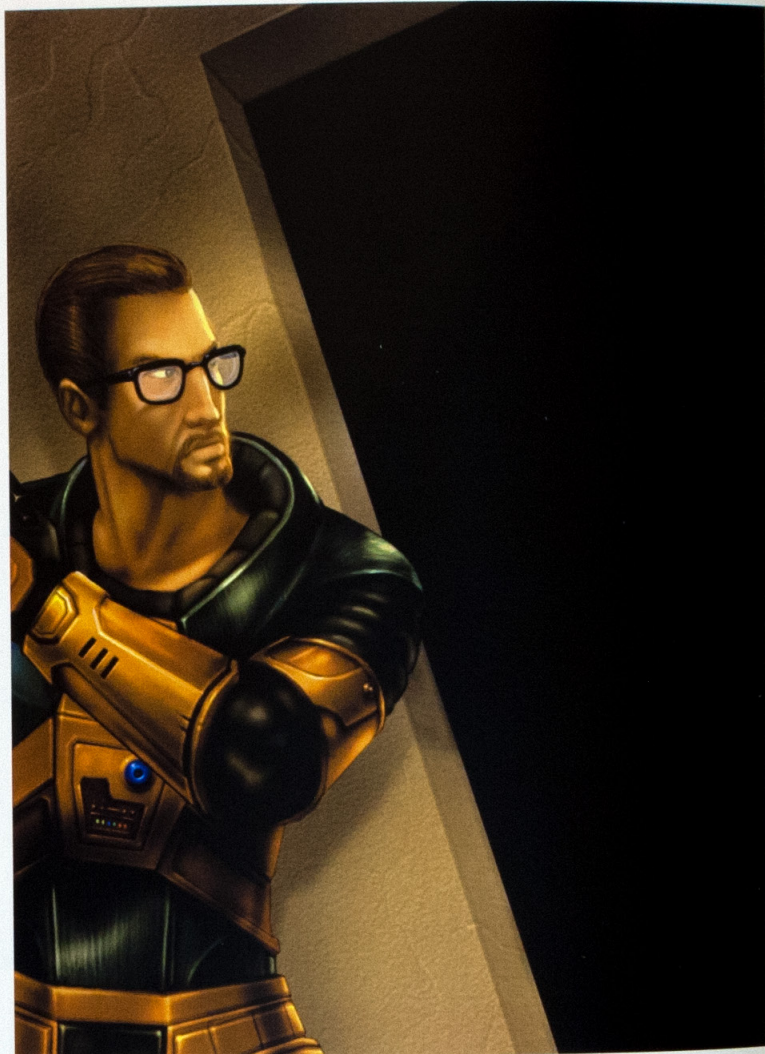




Gordon's final Half-Life persona, with final versions of the suit and glasses.



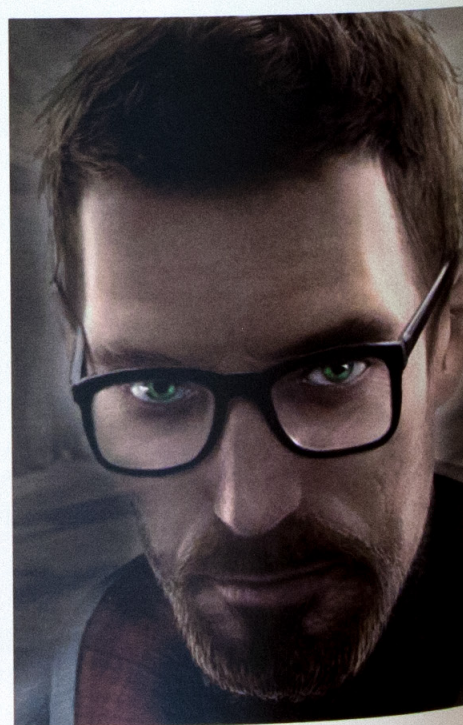
Gordon's muscular alter-ego from the modification *Holy Wars*



Gordon peers around a door; the character is finished, but the glasses aren't final.



Gordon's cel-shaded self from the interior of the PlayStation2 instruction manual



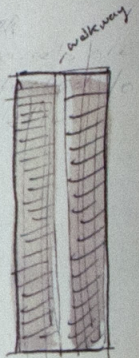
Gordon Freeman's image for *Half-Life 2*. Older, wiser, and still without a space bike.

FUEL STORAGE AREA - FLOOR B - MISSION 1, EP. 1



LARGE CYLINDRICAL
HALL STACKED WITH
BARRELS OF OIL -

POSSIBLE GAME-
PLAY ISSUE -
AN ENCOUNTER
HERE WOULD FORCE
HAND TO HAND /
MELEE COMBAT
USE OF GUNS
COULD CAUSE
PROBLEMS!

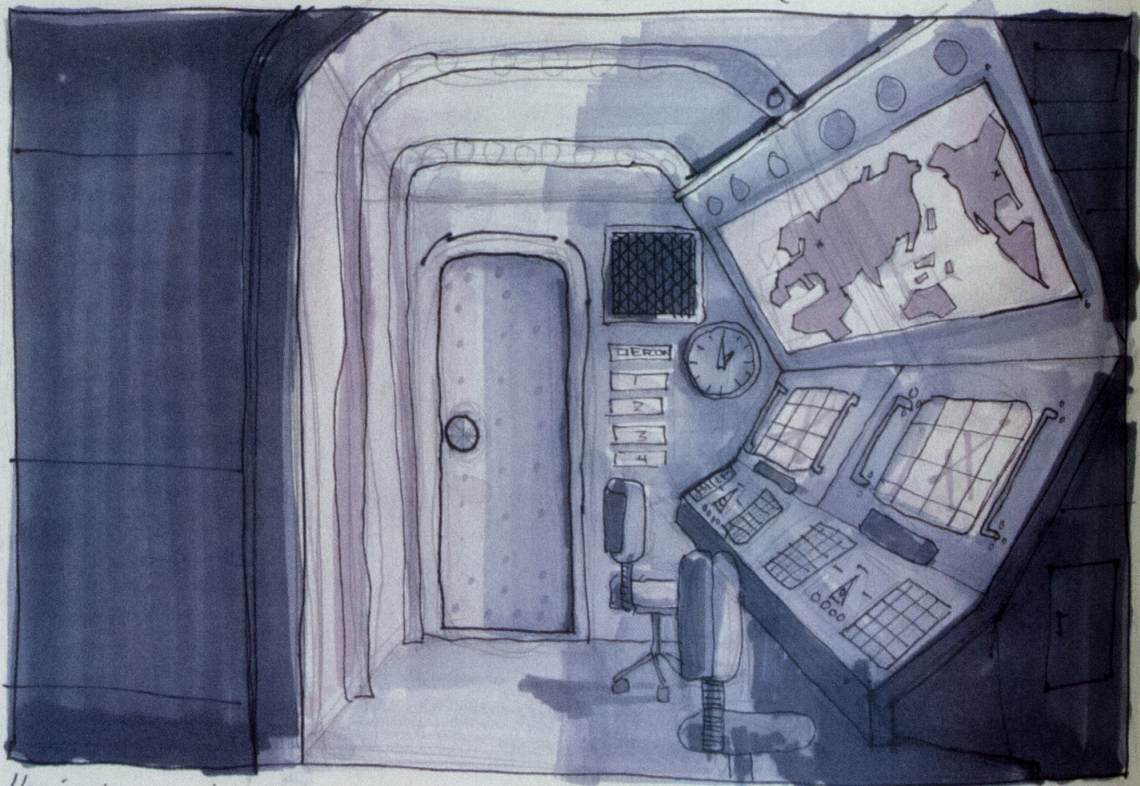


TOP

Must walk single file down path - creature moves in from other
end when player reaches halfway.

LAUNCH KEY ROOM (PUZZLE #2)

FLOOR B (BATHROOM ADJACENT.)



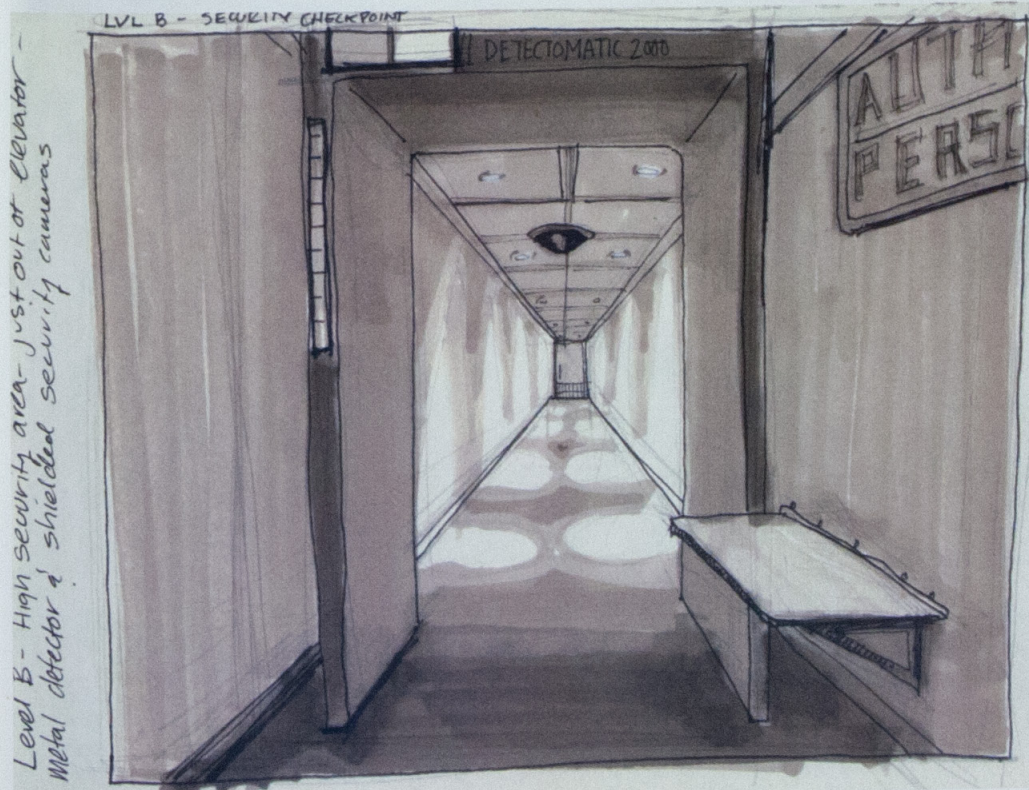
Displays illuminate otherwise darkened area. lots of
'nasties here'.

Here is where you & buddy must turn keys to open the top of Silo #1 to gain access to RR



SPECIMAN TANKS - LOWER LEVEL ROOM ADJACENT TO 'LAB'

COLD WAR ERA ARCHITECT

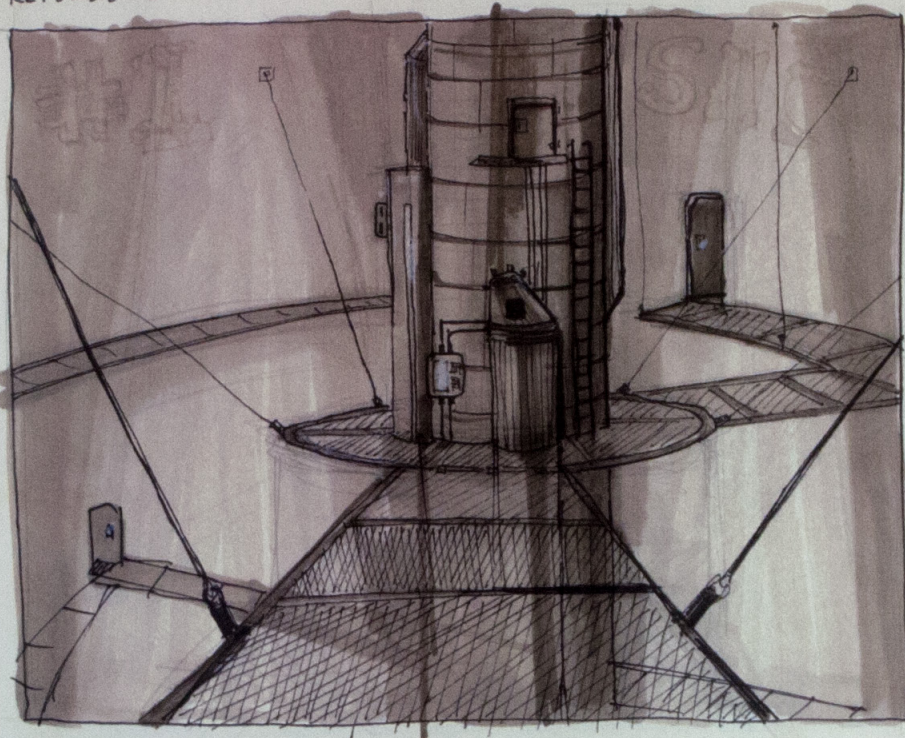


Level B - High security area - just out of elevator - metal detector & shielded security cameras

MAN FILE ASSOCIATED W/ METAL DETECTOR - ALWAYS GOES OFF WHEN GOING THRU. - NO NORMAL LIGHTING, BUT - EMERGENCY LIGHTS ON Black dome camera housings found throughout level B -

REFURBISHED MISSILE SILO - FLOOR B, MISSION 1, EPISODE 1 (SILO #2)

Particle accelerator occupies middle portion of silo -

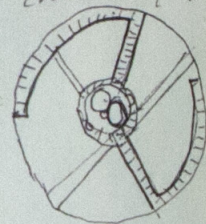


REFURBISHED SILO WITH NEW CATWALKS & CENTRAL POWER CORE LEADING DOWN TO ENERGY FIELD ROOM. CATWALKS WIND AROUND & GO DIRECTLY ACROSS SILO LEADING ALL THE WAY DOWN TO LEVEL C - NOTE - THIS IS THE SILO ASSOC'D W/ THE KEY ROOM PUZZLE

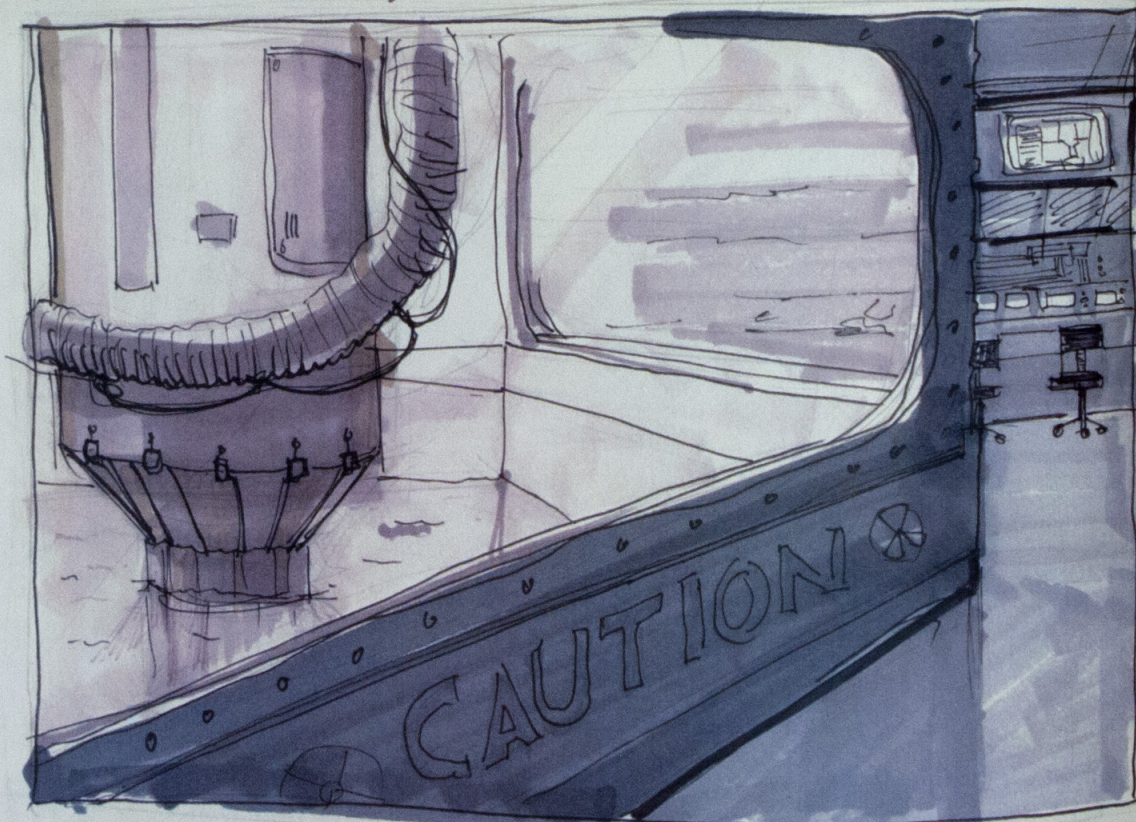
OLD MILITARY MARKINGS LINE THE SILO - "SILO #2, S.A.C., USAF, ETC"

PLAYER SHOULD, WITH SOME DIFFICULTY, FIND THEIR WAY TO THE TOP, LOTS OF SUPPORT CABLES HOLDING UP STRUCTURE -

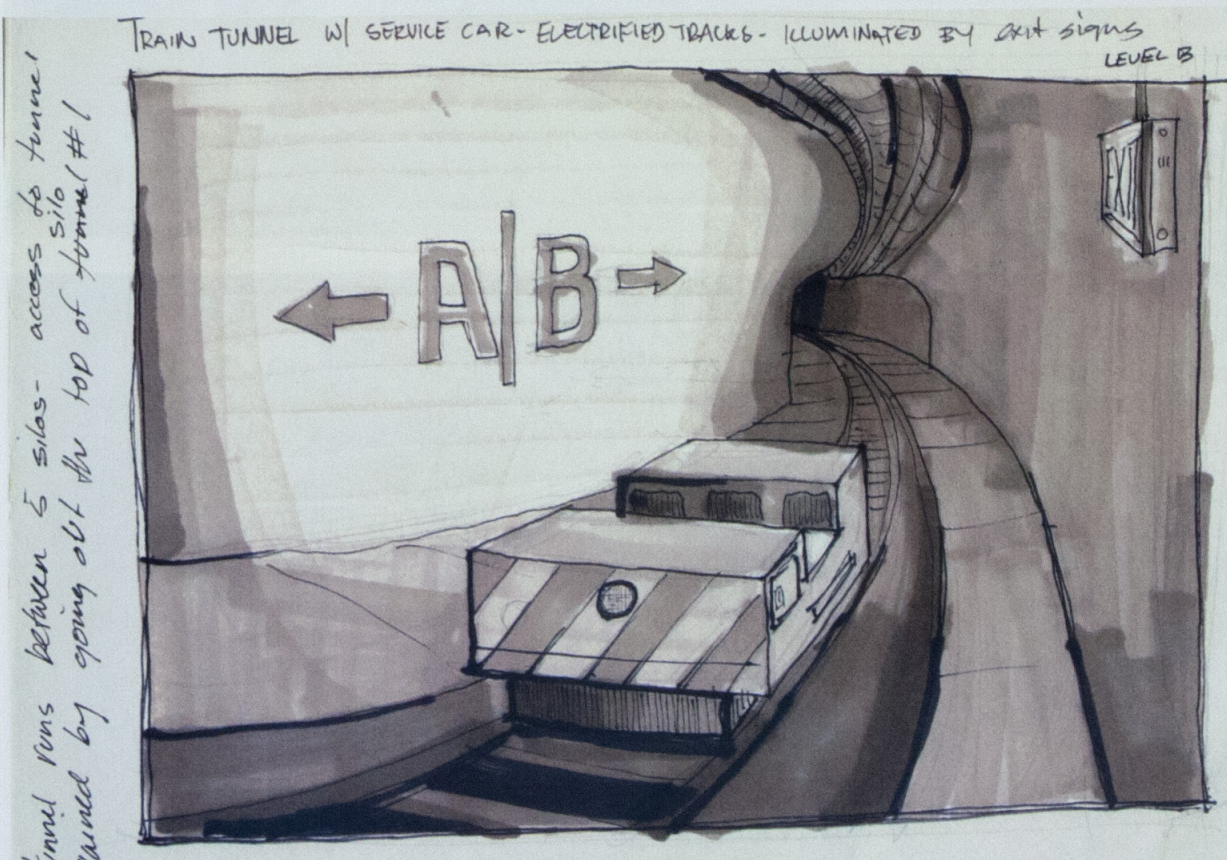
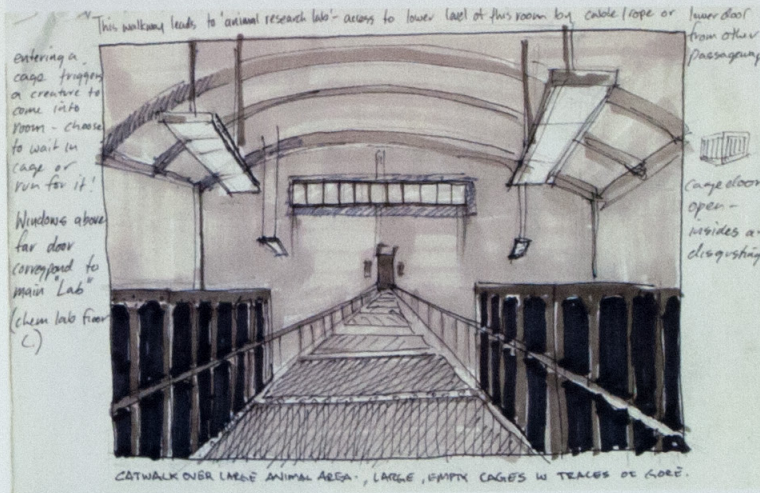
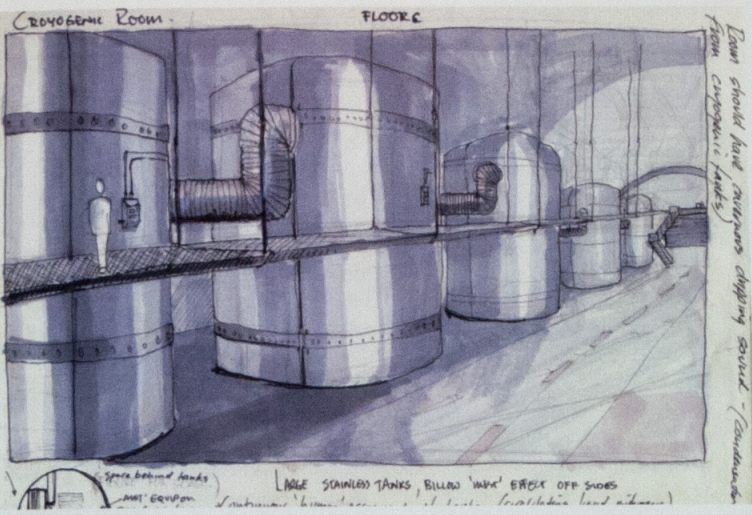
Cross section / top



CONTROLL ROD COOLING TANK & CONTROL ROOM IN BACKGROUND -



Possible ~~side~~ of puzzle - averting overroom / explosion caused by initial power surge in gale room.



small walkways on sides of tunnel - stepping on tracks does major damage - 'danger' signs on wall warning of electrification

tunnel runs between 5 silos - access to tunnel gained by going old air top of tunnel #1

SADISM WITH SCIENTISTS

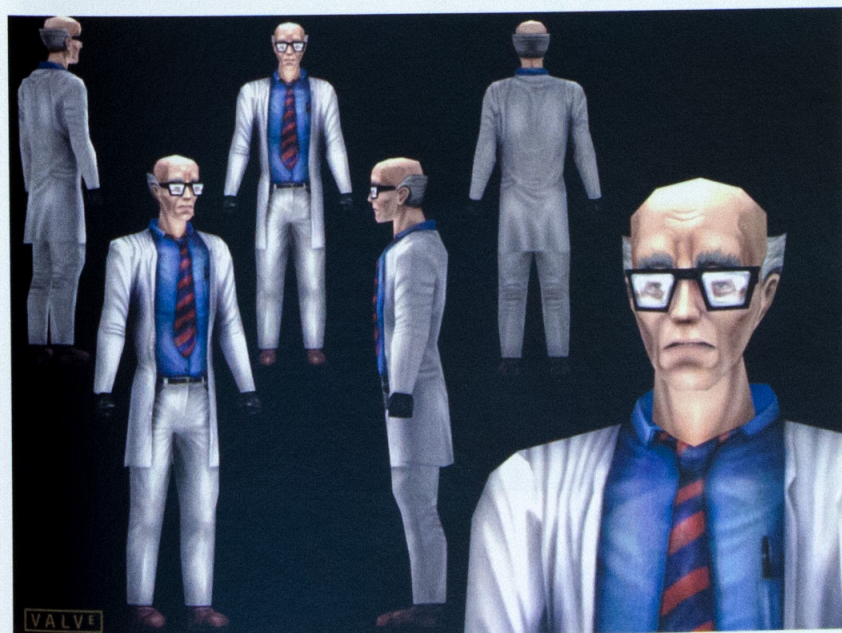
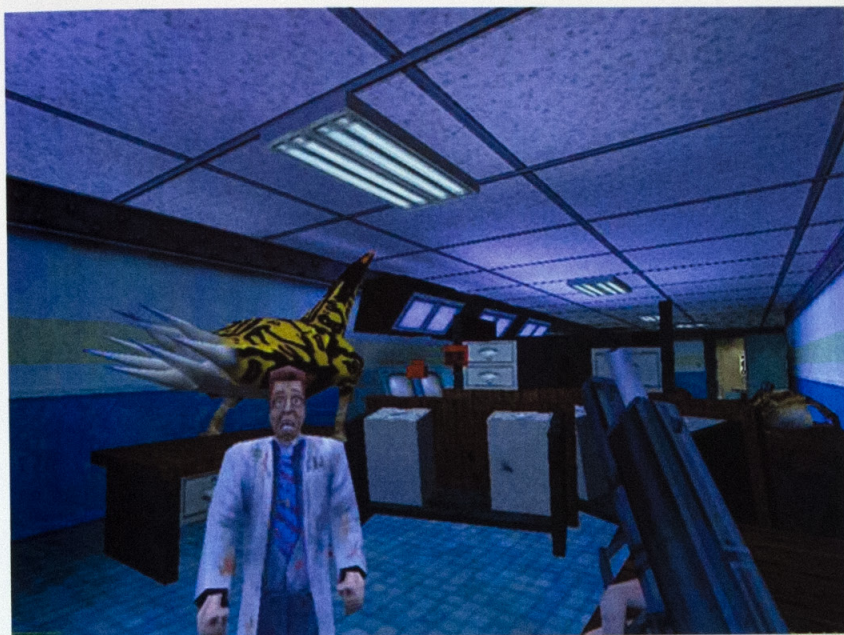
"Once the AI is really robust, we can let the stuff happen around you, and it would always have a different outcome, and there will always be entertainment in the middle of that, whereas being locked in a camera would be a step backward." Marc explains how static the original cutscenes had been: "We had a scene that was scripted out really rigidly where you reached some scientists [who] were rushing out to say, 'You're here, you've rescued us!' and a soldier grabs a scientist by the throat and holds him up against the wall and executes him right in front of you...or kicks him...or all the stuff we were going to do, but we couldn't figure out how deal with a player who might throw a grenade in the room and kill them all, and then break the script. We roughed [the scene] out with a really [sketchy] placeholder scene with the scientist. While we were setting it up for Doug Wood to animate, we started going into this room that was part of the overall floor level, and every time you went in there, the soldier would kill the scientist, or the scientist would run away screaming and you could save the scientist by killing the soldier, or you could watch [the scientist die]. And we went, 'We don't need to animate this. It just happens already.'"¹⁶ This was a key breakthrough for Valve: when their creations began to take on lives of their own.

When players are freed from such troublesome confines as cutscenes, they can let their own emotions, or in the case of scientist torture, viciousness, take over. Valve wanted to encourage players, even those with sadistic tendencies, not to miss out on the value their friendly characters gave to the game. They managed this in a far more subtle manner than previous games. "People who would be tempted to kill a security guard to get his gun? There are no bullets in the gun, [and] you quickly find out that Barney is way more valuable to you. He's got infinite ammo, he stays alive, he's a great character, he always will run out, guns blazing, and save your life, and shoot a bunch of monsters, and has no sense of self-preservation. I think people have figured this out about Barney. A few people have figured out that the scientists help, too. If you kill the scientist, and then another one, then the [next] one will refuse to help you after that. In many instances, they give you items. But the main constant decision was not to force stuff on a player."

On the other hand, Valve didn't have the time or inclination to make a completely freeform experience. "How do we let you kill the main character in the game and get through to the end? Do we have to create a parallel game for every single, possible choice that you would ever make? I'm amazed by the games that do it, like *Arcanum*. I've played that through and I was always trying to figure [stuff] out. Here is a character I can't possibly get through the game without, so I kill this character [laughs] and *Arcanum* just goes on and on. Our philosophy has been to have one linear experience and one ending rather than three, each of which is a third of the emotional impact of what that one would have had."¹⁷

It was the beginning of 1998 when a newly revised *Half-Life* struggled out of redevelopment hell.

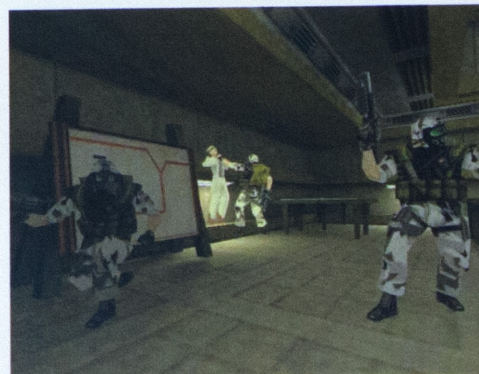




Scientist evolution began with Chuck Jones's evil syringe-squirting genius. There was an unused female scientist model, a very early brown-haired lab technician, the cartoon-like first version of the Kleiner type, the initial "Einstein" version, and the final in-game version of Kleiner.



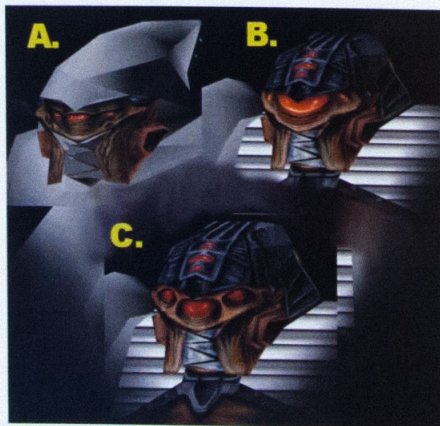
The aforementioned scientist neck strangle vignette, where AI breakthroughs were noticed





The Alien Grunt received a similar development makeover from an early colored, Chuck Jones sketch, to an early in-game rendering, and a final makeover for merchandizing.

Three head variants for the Alien Grunt





A composite image featuring a man with glasses and a goatee, wearing a blue jacket with a Lambda symbol on the chest, holding a large black and gold gun. The background is a textured orange wall with a large Lambda symbol in a circle. Faint, repeating text from the game 'Fallout' is visible in the background.

Good Morning
and Welcome to the
Black Mesa Transit System

.04

“Deep in the bowels of the Black Mesa Federal Research Facility,
a decommissioned missile base, a top secret project is underway.”
—The *Half-Life* Story

► Deep in the bowels of the Black Mesa Federal Research Facility, a decommissioned missile base, a top secret project is underway. A portal has been opened to another dimension, and human science has never seen anything like the world on the other side.

You are Gordon Freeman, a young research associate in the Anomalous Materials Laboratory. You have limited security clearance and no real idea of just how dangerous your job has become, until the morning you are sent alone into the Test Chamber to analyze a strange crystalline specimen. A routine analysis, they tell you. Until something goes wrong.

Is it sabotage? An accident? Or is it something you did? All you hear is screaming; all you see is spacetime shattering. The next thing you know, the entire Black Mesa Facility is a nightmare zone, with sirens wailing and scientists fleeing in terror from the things their co-workers have become.

Hordes of creatures from the far side of the portal are pouring through rifts in the local fabric of reality. Monsters are everywhere. Madness rules. You head for the surface, but the usual routes are impassable—closed off by the disaster, infested with headcrabs and houndeyes, and increasingly larger and hungrier creatures.

As Gordon Freeman, you must enlist the help of traumatized scientists and trigger-happy security guards to get through high-security zones, sneaking and fighting your way through ruined missile silos and Cold War cafeterias, through darkened airducts and subterranean railways. When you finally come in sight of the surface, you realize that the inhuman monsters aren't your only enemies—for the government has sent in ruthless troops and stealthy assassins. Their orders seem to be that when it comes to the Black Mesa, nothing gets out alive...and especially not you.

When even your own species turns against you, maybe you'll be glad to see another portal beckoning. But then again, on Earth you have allies; while on the far side of the portal, nothing at all is familiar except the sense of danger.

Save the Earth? Well, maybe. But that's a pretty low priority compared to saving your own skin.

—The Half-Life Story, as told by Sierra's Official Half-Life website

Gordon faces off against an Alien Grunt; one of the first art pieces after the game had been revised.



CHEERLEADING SQUAD 2

Valve was beginning to turn the game around after a monumental retooling effort, and the gaming press was starting to witness the new and improved offering. Valve's incredible AI was demonstrated in early 1998, when Valve released a number of "Squad" demos to a handful of media outlets. *Squad 2* for example, featured a large gray box room with bookcases and a table with weapons. You began with only the crowbar and tackled a quartet of guards who eerily and viciously outflanked you. Meanwhile, you dived for the table, snagged an MP5, and lobbed grenades while heading for bookcase cover. Steve remembers the demo, because he constructed it. "I remember trying to talk Gabe into not giving anything away. Coming from the mods background, I was really nervous about giving up press demos. There were a few of those, and a lot of the test cases actually became finished levels."¹

These "Squad" demos were a different gaming experience from the final *Half-Life* release eight months later. Because the room was so enclosed, you couldn't go anywhere, so the grunts would be much more frantic and crazy, yelling commands all the time. They were ruthless. In the game, they were farther away, behind a wall somewhere, and a different combat experience.

Steve nods in agreement. "It was different because you saw something that was prior to a lot of our playtesting. We determined in playtesting that it was a little bit overbearing to have a squad of four guys all fire at you at once, so a system was developed that distributes among the squad what you are able to get them to do. For example, two would shoot, one would throw a grenade, and everybody else would just hide. That actually resulted in making those encounters more playable for everybody, and I think it made it a lot more fun because there was a lot more motion. You wouldn't have a guy just going out and stopping, then shooting you; you would have shooting, then some guy running behind. As soon as he pulled the clip out, someone else would come out from elsewhere...."²

HELICOPTERS, HECTIC UI CREATION, AND HLDM

During this time, the skeletal animation system was finally perfected. Ken Birdwell was suitably happy with the results, telling GameSpot, "We can animate the different parts of the skeleton independently, so when you see your opponent in multiplayer, you can tell exactly where they are looking because that's where their head is pointed, which makes it a lot easier to sneak up on someone with the crowbar." Ken also mentions the weapon models: "Just changing the weapon model wasn't really enough. We wanted to make it a bit more obvious so we have the player holding and shooting each type of weapon in a unique position: down low for the machine gun, over the shoulder for the rocket launcher, two-handed grip for the pistols, etc. We started out only going to do a few, but it looked so good that Doug Wood just went nuts and made around 100 different poses."³

However, despite most of the big features being fitted into the new and improved game, some had to be dropped. "Pain skins," remembers Ken, which would show certain parts of bodies being wounded instead of the entire body, were cut, as was the ability for players to map their actual faces to the multiplayer characters. And then there were the design concepts that just didn't pan out, including one plan to have players actually pilot a helicopter in the game, with controls that Newell once called "just as good as a flight sim."⁴

In the middle of the rebirth of *Half-Life*, Ben Morris departed, and Yahn Bernier finally stopped practicing law and took much of the engineering weight from Ken Birdwell and others. "When I arrived at Valve," Yahn begins, "surprisingly, I was not asked to work on Worldcraft although that might have seemed the obvious choice. Instead I was given two major unfinished areas of the game to work on: the entire out-of-game user-interface and all of the networking code. I began working right away with Greg Coomer on getting a prototype user-interface up and running and we were able to get most things in the UI done by late summer 1998. The networking I think I started looking at in the summer. We had Threewave CTF creator and Quakeworld Linux network guru Dave "Zoid" Kirsch come up to Valve in summer of 1998 and spend a couple of days brain dumping the current Quakeworld networking architecture on me. At that time, the *HL1* code base was still based on the original *Quake* code base. Simultaneous to that, Steve Bond started spending a bunch of time tweaking the *HL1* single-player weapons for multiplayer usage in *Half-Life Deathmatch* and the mappers starting cranking out deathmatch-style maps for use in *HLDm*."⁵ >>



Single room AI demos, such as the different Squad tests, were sent to the media to show off the intelligence of the enemies.

SIX WEEKS OF INSANITY

Ah yes. The one tiny element missing from *Half-Life*: a multiplayer mode, a fact made all the more ironic as most of the team's previous hobbies involved deathmatch modifications. According to Erik Johnson, "About six weeks [away from shipping] was when we actually started thinking about multiplayer in *HL*." The task of starting and finishing the coding in less than two months "was thrown into Yahn's lap after he solved all the other hard problems that he had to solve shipping *HL*. Obviously the single player was something we spent a ton of time on to get perfectly dialed in, but we had almost no networking support; we didn't really have a launcher at that point. Everything was command line UI for the whole game, so in true Valve fashion we said, 'Yahn, you have to solve all these problems,' and Yahn went into a hole for 18 hours a day for a few weeks, then we started playtesting multiplayer."⁶

"We had a bunch of networking that was available to us. There were some core parts of the engine that were still there. We had the *Quake II* source, so there was a lot of changes that had been made between *Q1* and *Q2* that we could look at networking and the way things were done there. We had most of the content for *HL* done, so we had all the horsepower on the content development side with the team to create levels. Creating the levels was not the most difficult thing in the world. Dave Riller, John Guthrie, Doug Wood made [a map called] Bounce—they were all really itching to do something to add to the product. At that point, when on the single-player side we were saying, 'Let's shut this down and stop changing anything.' On multiplayer it was like, 'OK, it's a free for all'.... I'm surprised that we pulled that off, actually."⁷

"To be perfectly honest with you," Erik Johnson remarks, "we rolled the dice a little bit toward the end. Everything from Yahn writing all the networking and matchmaking, all the way to designing levels [that] *Half-Life Deathmatch* would have was very frenzied, but it was also really exciting to go through that." Cannibalizing portions of *Half-Life* maps was a way to quickly increase the level count. "One good example was Datacore that Dave Riller made. That was originally a *Half-Life* lab [that] was taken out and cut. Most of the changes that we made were detached from single player based on feedback."

Toward the very end of multiplayer testing, the team realized they needed an outsider to offer a different perspective. So they flew in Dennis "Thresh" Fong, the Ferrari-winning *Quake* world champion. "Actually, that was a really fun playtest. Two to three weeks from [shipping] we invited Thresh and we played DM into the wee hours of the night. Robin [Walker] and I played against him [for] a while and we were actually pretty amazed at how quickly he picked up the product. He had some interesting feedback for how to build MP. Some of the other changes we did were like the [sight] zooming behavior across the different weapons to make them a little bit more interesting."⁸



Early in-game screenshots of the Military Gunner and Chub Toad. Only the Alien Grunts made it to retail release.



The multiplayer coloration of the HEV suit, which was originally red, then changed to the trademark orange, and multi-colored versions for deathmatch



MANAGING THE MULTIPLAYER MADNESS

Yahn Bernier, holed up in Valve's studios on six-week permanent crunch just six months after taking the job, was instrumental in completing the technical aspects. "I was making sure that in-game multiplayer worked out of the box. I wrote all of the code to allow painting of custom spray logos, including the pseudo-unsupported feature of multiple frame decals, which users were able to tweak to get full color decals. There was a bunch of back-end work that went into the *HL* engine online stuff as well: tweaking and integrating the authentication protocols with the help of the WON.net engineers over at Sierra, hooking up the CD-key system, building the in-game server browser and creating the master servers to support that. We got a ton of work done really quickly. Probably the place where I had the most design input was in the whole in-game server browser."⁹

Multiplayer was coming together throughout August and September, as quickly as sleep-starved designers could manage. Grabbing single-player maps and adapting them for deathmatch was one of many concerns, as John Guthrie recalls. "We really scrambled at the end there because our primary concern was to make a product, a game, and we wanted to offer a multiplayer but it was certainly the priority to make a good single-player experience." Steve, Dario, and John helped with much of the fine-tuning and weren't too worried. "We were pretty comfortable," Steve states. "I think that if people around the company liked what we were doing with the multiplayer stuff, then it was probably pretty good. We were fortunate enough to have a lot of really experienced multiplayer people that have really good instincts for it design the levels. It was busy, but it wasn't painful."¹⁰ >>

ABNORMAL LEAKAGE

September of 1998 brought a whole new headache to Valve; the release of the OEM (Original Equipment Manufacturer) version of *Half-Life* known as *Day One*. It showcased around 20 percent of the final game (36 bsp maps, and five hours of play time), which was supposed to ship two months later in tandem with the game, as part of a video card package. Except it didn't. It was leaked. Gabe wasn't worried about the early and unplanned look the public got at the game—in fact, it was one of the best marketing tools ever accidentally released—he was more concerned at the fact that Valve was obliged to release it.

"The reality is that shipping *Day One* was incredibly useful to us as a development team. It forced us to make the sets of decisions that you have to make to get the product out of the door. And if we hadn't done *Day One*, *Half Life* would not have shipped in 1998, it would have shipped in 1999. I don't know how much that would have affected us, but it definitely was an exercise that forced us to address a bunch of issues and get a bunch of things put to bed. We had this contractual obligation to do it, but it was also a really good thing for us to do and everybody knew we needed to do it. We had to get our noses to the grindstone, get all the *Day One* pieces to shippable quality."¹¹

During this time, between the May 1998 E³ trade show and the *Day One* leak, the enthusiasm outside Valve's offices was seen firsthand and began to grow.

At E³, most who saw the game didn't realize exactly how much redesign Valve had gone through. Valve was also starting to doubt itself—was *Half-Life* really good enough to compete against the likes of *SiN*, *Shogo*, *Blood 2*, *Heretic 2*, and (at the time) *Daikatana*? "In this industry, you really rally around the trade shows," explains Harrington. "There isn't a lot of public feedback during the process of creating a game, and given that we're a new company, you tend to wonder if you're on course or not."¹²

"One of the big events was E³ 1998 when John Romero came by and had his 'holy shit' reaction to the demos." Gabe knew Valve had succeeded "when [id Software's] Tim Willits sent me an email saying, 'I just went ahead and pirated *Day One* and you guys did really *really* great stuff, this is actually what we were hoping people would do with the *Quake* engine."¹³

John Romero, still recovering a few months after E³, had a similar reaction: "I must admit that I got a hold of the leaked OEM copy of *Half-Life* and was instantly hooked. I played the game all the way through and loved it every minute of the way, even all of Xen. Just incredible. One of the secrets to its success was the ability to totally terrify the player by teleporting an alien right in front of you—I mean, there's just no competing with that method of spawning enemies and scaring the player—huge win there."¹⁴

Warren Spector, who at the time was one of the developers of *Ultima Underworld*, also had some praise to bestow: "The most impressive thing Valve has done is make you feel like you're in a real place. This isn't some goofy gamespace, but a believable research center." Spector did have one minor complaint. "*Half-Life* is still set in a warehouse world," he says. "I gave Gabe a hard time about this once. The archetypal game world is filled with nothing but crates."¹⁵



Screenshots taken during development of the multiplayer, showing scientists brandishing a variety of weapons (one of the first times ordnance could be seen from another POV). All of this is taking place in an arena nicknamed "Snark Pit."



DAY ONE: PIRATED, PLAYED, AND PRAISED

The demand for the OEM version only grew when many critics and industry luminaries decreed it to be one of the best 3D action games ever. GameSpot's Elliot Chin was first to preview this new build, and was blown away (and not just by the military grunts' AI and weaponry): "This awesome (yes, awesome) preview of *Half-Life* restored my faith in gaming," he enthused. "*Half-Life: Day One* grabbed my attention from the instant I played it and held me enthralled to the finish. It wowed nearly every other editor in the GameSpot offices, and a crowd of editors gathered around my computer to watch me play. How many other games can claim that they are as fun to watch as they are to play? I don't give accolades easily, and I have no qualms saying this game is looking incredible. It blew me away as few games have done in my three years covering games."¹⁶

Meanwhile, down in Texas, "Most of the Texas game development community was stunned by the final *Half-Life* demo," says John Carmack of id, "There has never been a game demo that got as big a reaction at id as the *Half-Life* OEM version. We had some doubts, but it looks like Valve's plan worked."

"From art to design to programming, *Half-Life* is the best produced and most intelligently designed 3D game I've played," says id co-owner Kevin Cloud. High praise from the design gods Valve first met with for advice. "If games are a combination of programming, art, and design, then *Half-Life* is a great balance of the three. It defies the prevalent notion that storyline and interactive environments are the antithesis of gaming action."¹⁷

Tim Sweeney, who created the *Unreal* engine, was similarly impressed with *Day One*. "*Half-Life* is the first game I've played that really feels like you're playing a movie," he remarks. "Previously, all those interactive movie games felt like watching a slow, poorly made movie and having to stop every 10 seconds to click somewhere on the screen." Sweeney also thinks that Valve has upped the ante for other developers. "They've set a new standard for immersiveness. Other game developers will have to work very hard to compete with them."¹⁸ >>

From left to right—the Alien Slave, Alien Grunt, Female Scientist, and Xen Master, shown for size comparison

Epic Games' Lead Designer Cliff "CliffyB" Blezinski also remembers the game's impact: "*Half-Life* came along when the first-person shooter was all about keys, doors, and switches, and brought the genre to a new level. It was a perfect mix between contemporary/real world tactics and weaponry alongside a hell of a sci-fi ride."¹⁹

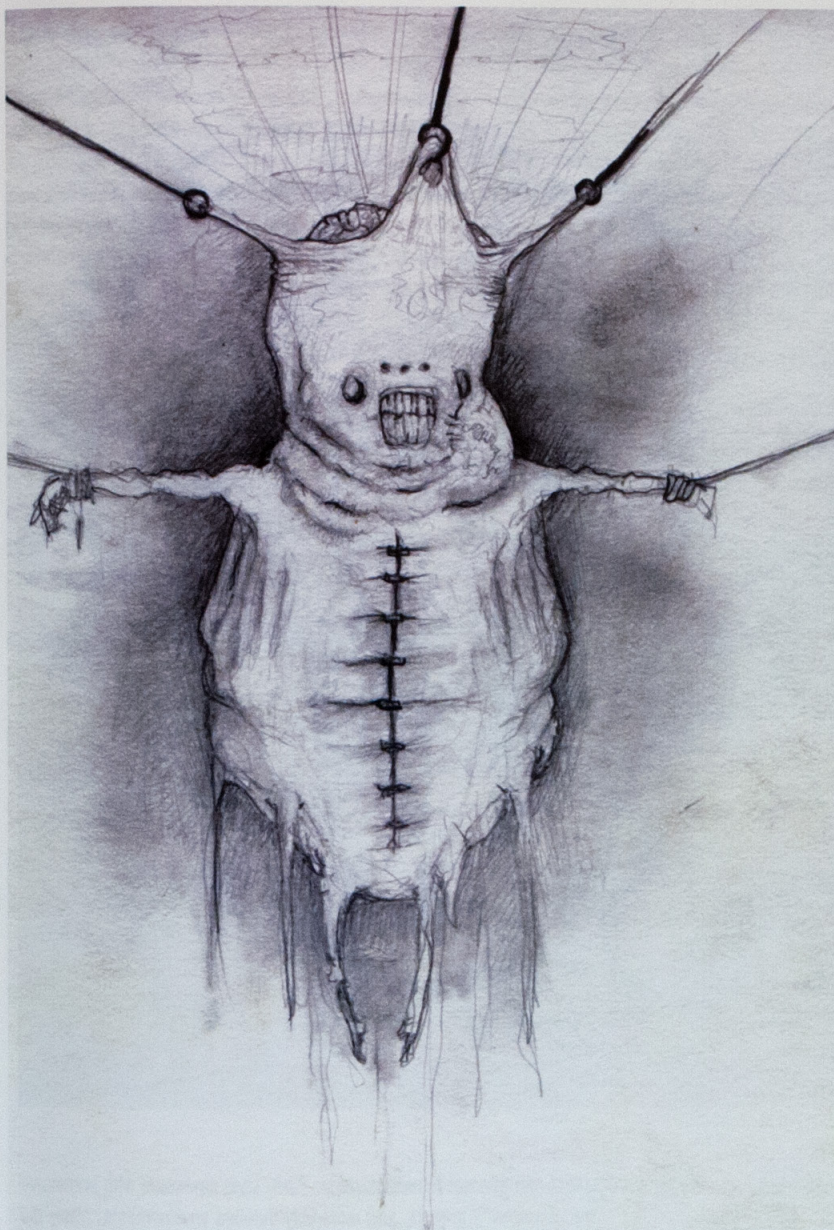
As George Broussard, who helped create *Duke Nukem*, puts it, "Finally, there are characters more than enemies, and more than guys that just stand around waiting to be killed."²⁰

For Mike Harrington, the praise was humbling. "I think all developers are self-conscious and self-doubting. But when we started getting a positive reaction from the OEM version, we were really relieved."²¹ Steve, Dario, and John also remember the jolt they received after the leak of *Day One*, when the critical reaction to the game began to turn from a trickle to a torrent. "That kind of came early," John thinks back, "when *Day One* leaked that really took a lot of pressure off, because we were still several months from shipping when that happened. And the response to that was so overwhelming and positive, that really helped a lot." "It was fuel, it was just pure fuel," says Steve. "It put us in super overdrive. We worked even more hours, which didn't seem possible, but we were just feeding off the really positive response, the satisfaction of seeing our plan come to fruition, and seeing the results."²²



The trademark Zombies (also known as Mawmen for the official guide, a name which never stuck), with and without headcrab fixings





The end of game was a battle between Freeman and the Nihilanth, of which this is an early sketch.

“THEY THOUGHT WE WERE COMPLETE CLOWNS.”

This was the first time Valve had received a really positive feedback from the industry, fans, and respected veterans. Gabe was again able to remember back to the company's first tentative footfalls at demonstrating *Quiver*, especially before the overhaul. “When we first went out late 1996 and early 1997 to meet with publishers, we thought that we were going to be well-received. But in a lot of cases, we'd walk out the door [after a meeting] and they were tearing up our presentation and laughing: ‘Ha-ha-ha-ha-ha, nice operating systems guys, are you trying to build video games? Ha-ha, did you see the list of things that they're trying to do? Oh my God, they're never going to ship.’ We have actually had people come back and tell us this.” Broderbund was particularly cynical. “They were polite to our face...oh my God, this was when Broderbund was still riding high on *Myst*, they were still shipping unbelievable numbers of *Myst* so they were a big deal in the PC space, and they said afterward that they thought we were complete clowns.”²³

One of Gabe's fondest quotes was from the man responsible for helping create Valve, Michael Abrash. “When Michael Abrash said that *Quake* would be worst game that was ever developed using the *Quake* engine, his point was that they barely had time to really take advantage of it and so within id there was that sense that we were sort of fulfilling more of the possibilities of the *Quake* engine that they had really hoped to see people take advantage of.” >>

Fellow developers, luminaries, and other industry folk were congratulating the team. But what about the notoriously fickle gaming press? Throughout 1998, *Half-Life* was seen as one of a dozen first-person shooters scheduled to ship in the year. "We didn't really know what to do in terms of responding. We had our idea of what we wanted to do with our game, and the sorts of things we were trying to do. It was not like we could go and look at screenshots of these other games or read descriptions of them and have a plan. So, we'd read what they were doing, and some of it sounded pretty interesting, but we didn't really have the time to do very much."²⁴ Toward the end of the year, the media began to spot two contenders: *Half-Life* and Ritual Entertainment's *SiN*. Even this competition didn't worry Valve. They spotted another game on the horizon.

"What caused us to have the largest emotional reaction, much more than what we were seeing out of *SiN*? The one that scared the hell out of us was *Trespasser*."²⁵

A late illustration showing Ospreys delivering grunts to a rocky outcrop. This was used heavily in marketing and subsequent game box materials.



TRESPASSING THE BUCK

Dreamworks' *Trespasser* was the first real attempt to meld *Jurassic Park*-style dinosaurs with immersive physics, a health bar on the player character's breasts, and incredibly detailed environments. "They did something that was either feverishly brilliant or really spectacularly stupid. I think in retrospect, it's pretty easy to figure out which one it was. They had two versions of their engine. They had their game mode and their target mode. In other words, the real mode that is run under the reasonable frame rate, and their fake mode, so [they could] put up these screenshots with self-shadowing T-Rex [models] and things like that. We saw an early screenshot before *Half Life* shipped and Ken [Birdwell] just looked at it and said, 'I can look at what everybody else does and figure out what they're doing and make intelligent decisions about whether or not we want to do it, but if they're doing this we're completely screwed. I mean we should just all give up right now and just surrender, because I can see how I might be able to do this once every twentieth of a frame per second, but I can't possibly imagine how you'd do this in a game.' So looking at the *Trespasser* screenshots probably had the biggest impact on us simply because if they were doing what they said they were doing, we didn't know how to be competitive with that. Fortunately they didn't know how to do that either, so it all worked out for us."²⁶

The week prior to *Half-Life* going gold and being submitted to Sierra's quality assurance, which occurred on November 6, 1998, was as frantic as any previous [ones] that had gone before. Writer Geoff Keighley was there to describe the final, slightly panicked hours for GameSpot. This was a time of headcrab piñatas, showstopper bugs, and questionable personal hygiene.

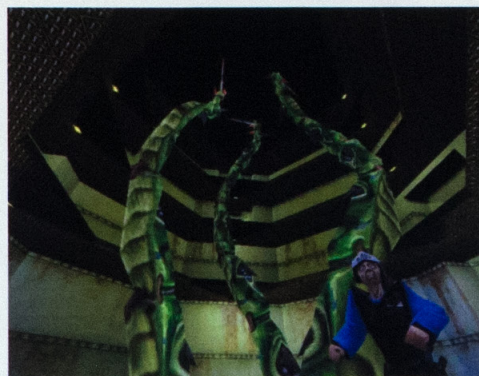
THE FINAL HOURS OF HALF-LIFE

When the *GameSpot* article's author arrived at Valve, he was greeted by the sights, sounds, and not to mention the smells of Valve's men at work, frantically finishing a project no one dreamed would be the success it turned out to be. The various routines for the developers were recorded for posterity: "There's the pulpy sound of a crowbar ku-thunking into the soft-as-a-peach outer layer of skin on some organic lime-green colored creature. To the left, one hears the rat-a-tat-like resonance of a machine gun spewing bullets, followed by the tings of scores of empty shell casings hitting the ground." These were the offices of the designers, making sure houndeyes and rapid-fire ordnance worked as it should. The coders' domains, however, were silent, save for the "hollow cadence of fingers furiously tapping away on a keyboard."

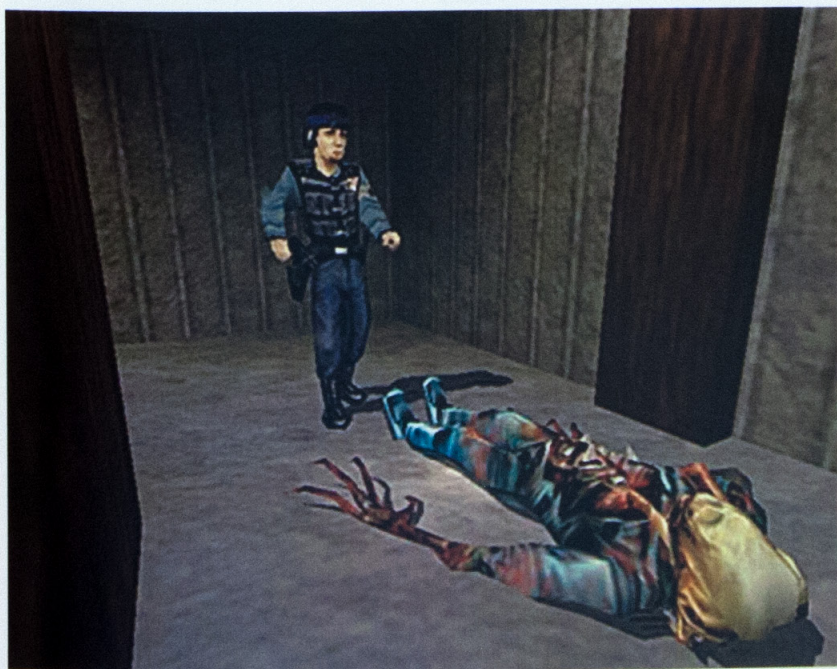
"It's finally sinking in that two years of work is being taken away," John Guthrie sighed at the time, hoping his new nickname of "neck beard" wouldn't make it into the article. It did. Guthrie was like the rest of the team; he'd been working on the game that failed to be fun, then the Cabal-influenced rethink, for the past two years. In the months up to completion, this meant 18-hour days with no weekends. He wasn't to be disturbed, as his doormat informed everyone with the words "Go Away" stitched onto it. Time was of the essence, and on this particular occasion, one of Valve's prompt four o'clock meetings was called to inform the team that, yes, it was almost time to ship the game. When those pesky showstopper bugs had been removed.

"Everyone else is playing through the game time and again searching for the bugs," Gabe informed *GameSpot* at the time. This was par for the course, and would be replicated seven years later during the final hours of *Half-Life 2*. The game was played, played, and played some more, and the slightest lighting problem to the complete game crash were noted and fixed. During these final days, the team was hoping for the best. Alas, the staff informs him of a few major errors. One of the more impressively annoying was "a problem that causes the game's multiplayer server to run so fast it can't talk to the player's computer. At the moment, no one knows what's causing the problem, which means it's impossible to fix."

This meeting was called in the room with the now-legendary headcrab piñata: "The developers look up to an object hanging two feet below the ceiling. This sort of dangling carrot is a piñata of a headcrab. Made out of papier-mâché by Guthrie's then girlfriend Jamie, it hangs motionless, silently awaiting its fate." Next to the headcrab was a "yard-long black crowbar." *GameSpot* assumed Gabe was eying it expectantly to use it on the piñata. Which was probably right; Valve didn't mysteriously lose any members of staff in the final weeks of testing. Did they? >>



Barney...the all-encompassing term for the Black Mesa security squad. These guys turned from white-helmeted MPs, to maintenance guys, to haggard gaunt NPCs (a.k.a. "evil Barney"), and finally to the Barney-type most recognizable.





Godzilla attacks with his whip tentacles / bite

Coloring would be dinosaurs with cyber features.
(pale yellow to cream-white, black and red had
large black stripes)



A happy accident: The Bullsquid, a creature Ted Bachman created after reading *The Mist*, made it more or less unchanged into the final game, although it was originally dubbed "The Bullchicken."

"PERSONAL HYGIENE IS AT AN ALL-TIME LOW."

The now-classic utterance was an offhand comment made by the bearded John Guthrie after he and most of the rest of the staff failed to make it home for another night. He's not the only one with alarming facial hair, as *GameSpot* informs us: "Mike Harrington now has a beard, which has slowly developed over the week as he's worked nonstop on finishing the game. On the wall opposite the windows, there's a white board that lists "Days to Ship." They're all marked off. Valve was supposed to be done with the game on Monday. It's now Thursday."

While the programmers tweak, and the designers fiddle, the rest of the team helps out the best they can, and prepares for the real world. Or as Marc Laidlaw put it at the time, "Gabe urged us to say our good-byes to *Half-Life* and prepare to see our baby go out into the world. People who had been working 24 hour days were suddenly sitting about hollow-eyed and wondering what to do with themselves." The upshot of this is more telling; many of the team hung around the Kirkland offices regardless, urging on the programmers in a unifying tide. Alas, no one thought to bring a razor for Guthrie or Harrington.

With the multiplayer showstopper bug squashed, the team immediately burned a "release candidate" CD, but didn't send it to Sierra just yet, as Gabe explained: "There's a 48-hour cooling off process where everybody makes sure you haven't done anything silly, like forgotten a file." This wasn't the case. The game was complete, and Gabe began to enthuse about the last element of the game, the multiplayer. "I was sitting here testing multiplayer, and I was thinking, 'Damn, this is really cool!'" he says. "At the end of other projects, I'm usually more neutral about them when they go out the door, with an acute awareness of everything I'd like to have added. I don't feel like that with *Half-Life*."

Of course, knowing you can leave the office results in Valve's staff heading out and immediately testing the multiplayer support from their homes. Meanwhile, Sierra's test department spends days pouring over the gold master, ensuring Valve didn't miss anything before the hundreds of thousands of game CDs are replicated. Sierra approves the code on Saturday, November 7th, via a "fateful e-mail": the release candidate has been approved for replication. *Half-Life* is done. "We were all in a state of shock when we got the e-mail," says Laidlaw. >>



Robots replaced humans in the German version of *Half-Life* because of Germany's stringent laws regarding violence.

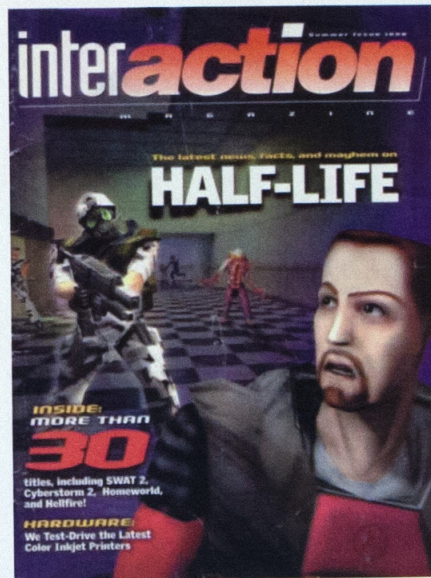
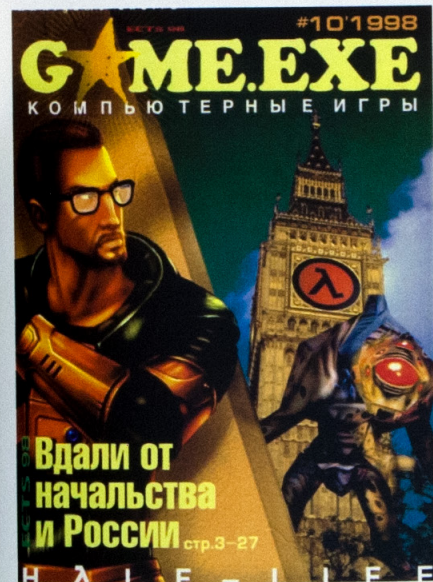
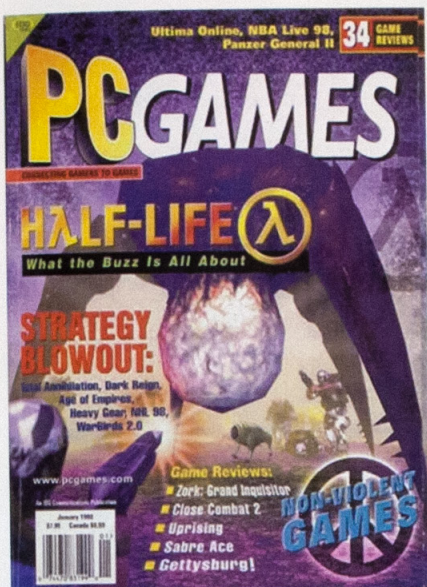


THE CRAB GETS IT

Heading back into the conference room, there's one final four o'clock meeting to attend. This occurs on Monday, November 9th. At 3:45 PM, the game is declared officially "gold." A mixture of euphoria and lethargy sweeps over the room, punctuated by the headcrab-culling ceremony. GameSpot was there to see the crowbar fall: "Newell picks up the crowbar with both his hands. He sets his sights on the headcrab, and everyone else stands back. He winds up, takes a stance, and gives it a good whack. It goes flying. A rubber band drops down on the ground from inside the crab."

"Next, Mike Harrington takes over the crowbar and prepares for his assault on the headcrab. Harrington takes a whack at the crab, narrowly missing Newell with the crowbar. Out flow pieces of Monopoly money and some wind-up *South Park* characters." Dave Riller remembers being a little disappointed that Gabe had struck out. Then a period of reflection, and future plans: "I'll be the first person to admit we were lucky," says Newell, "I don't mean to diminish all the hard work that went into this game, but there was an element of luck associated with *Half-Life*. Hopefully, its success will let us do even more interesting things with our next game." The rest of the team heads for a Mexican vacation.²⁷ >>





Coverage in gaming magazines throughout the world. It began in January 1998's *PC Games* magazine and continued well into 2001.



HALF-LIFE: THE AFTERMATH

Shortly after the finished game was sent to Sierra on November 9, the media was informed. Gabe had the following announcement to make: "*Half-Life* has gone gold and is in manufacturing. I'd like to say how extraordinarily grateful all of us here at Valve are for the support and enthusiasm you have shown *Half-Life* over the last two years. We are very proud of the product, and hope it lives up to your expectations."²⁸ It seemed to. >>

AWARDS AND HONORS²⁹

"Best Game of All Time"

—PC Gamer

Half-Life was named "Best Game of All Time" by *PC Gamer* magazine in its November 1999 issue.

Game of the Year

In addition, *Half-Life* has won Game of the Year honors from 50 publications, including:

Industry

Computer Game Developer Spotlight Awards
The Academy of Interactive Arts
and Sciences Awards

Print Publications

PC Gamer
PC Games
PC Accelerator
Computer Gaming World
Houston Chronicle

Online Publications

CNET GameCenter
GameSpot Reader's Poll
Antagonist Games Network
Adrenaline Vault
Teen People Online
Houston Chronicle
Blue's News
Gamers World
Game Over Online Magazine
Download.net
Gamer's Depot
Gamezilla
Digital Entertainment On-Line
Loony Games
sCary's website
Game Asylum
Voodoo Extreme
Intelligamer
Electric Games
The Electric Playground
Game Power

Around the World

PC Player (German)
PowerPlay (German)
Gamesmania (German)
NBC Giga (German)
Missil.net (Sweden)
Daily Telegraph (UK)
Gry Komputerowe magazine (Poland)
Pelit magazine (Finland)
Slitz (Sweden)
PC Home (Chinese Edition)
Megascene (Austria)
PC Gamer (UK)
PC Format (UK)
.NET (UK)
Ultimate PC (UK)
Game.EXE (Russia)
Speltorget (Sweden)
Generation 4 (France)
ECTS Interactive Entertainment
Award 1999 (*Game.EXE*—Russia)
ECTS Interactive Entertainment
Award 1999 (France)
ECTS Interactive Entertainment
Award 1999 (Eastern Europe)
Best Action Game & Game of the Year
by the readers of *PC Zone Benelux* (Holland)
Play Online Magazine (Japan)

Peer Awards

Half-Life also won seven peer awards at the annual Computer Game Developers Conference, including:
Best of Show
People's Choice Award
Best PC Game
Best Action Game
Best Use of Graphics
Best Artificial Intelligence
Best Use of Audio

(Facing page) The metallic, pitted, decayed surface with embedded lambda logo graced the *Half-Life* box.



Over the course of the next year, it garnered more than 50 Game of the Year awards from publications as diverse as the *Daily Telegraph* (a UK newspaper) to *Slitz* magazine (Sweden). "All of the accolades are something that people really take seriously, and get into. They're very important to the company. Getting Best of Show, all the Game of the Year awards, especially the first time—were huge,"³⁰ says Doug Lombardi, Valve's public relations guru, reflecting on the accolades Valve proudly displays in its office entrance foyer. *Half-Life* mania had officially begun, although it wasn't until an August 1999 event called Mod-X that Gabe found out just how manic.

"It was at some café down in San Francisco that we were going to show the *TF2* demo. And it was myself and Gabe and Erik Johnson and one or two other people from Valve were there. And when it opened to the public, we had no idea, because we were in back of The Net Café when all of a sudden we turned around, and the place was getting mobbed. Somebody opened the door and people were literally running in to get in front of the big screen, to watch the *TF2* thing. And there was barely enough room for Gabe to get up and give the *TF2* demo. And literally, the minute he was done, I called for a limo to have them pull up around the back of the alley. And I grabbed him to get the hell out of there. Because I mean, we weren't going to get the hell out of there alive! It was really weird. And it went sort of like, 'cool, the game doesn't suck,' there's going to be a demand enough to do a sequel and an add-on pack and all that, which is amazing. [The regular benchmark of success, but not a huge success. It's this: 'Oh, my God, what's happening?!']"³¹

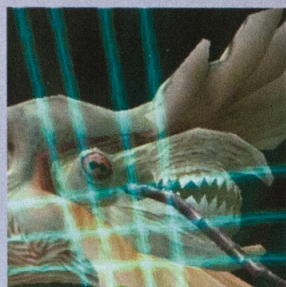
As the positive reviews piled in, the designers in particular remember specific publications that really hit home. For Dario Casali, it was when "the UK *PC Zone* gave a rating... I think it was higher than *Doom 2*. Back when *Doom 2* came out, I was still involved with them and I couldn't believe that we were ranked higher than that." Steve Bond flipped through *PC Gamer*. "When I saw they gave the game 97 percent, I was like...wow! We didn't think we were going to score anywhere near what all of our heroes and idols could be. You don't think that because you have your head so close to the product for so long that you have no idea how this is going to end up. Critical acclaim was fun from fans especially, all of our friends and our fans gave us all these forum posts and other developers were sitting there giving congratulatory messages."³² It was justification for the redesign, the hard work, and the innovation.

The game had finally shipped, and the team staggered back to their respective dwellings, then staggered back to the airport. "They put us all on an airplane after shipping to Cabo San Lucas for a week, and we got back just as *Half Life* was hitting the shelves, so that was kind of cool," says Steve. There was a second, unplanned trip to Hawaii too, after Gabe lost a bet. "We ended up going to Hawaii [as well] because once, while we were making *Half Life*, somebody said, 'What if we win best game of all time?' It was purely a joke. Gabe goes, 'If we did that, we would all go to Hawaii.' So *PC Gamer* magazine came out with the 'Best Game of All Time Award.' We got it, called Gabe on it, and we said, 'So are we going to Hawaii or what?'. He is a man of his word. And really he's careful about what he says now too. I noticed in an email today he said 'If that happens again, I will buy you a beer.' So he has scaled back his promises this time."³³ ■

Gordon Freeman's *Half-Life* had only just begun. Here he stands in front of his original background before being placed on the box cover.



An early treatment for the cover of the PlayStation2 version; one of many projects for which *Half-Life* was the impetus.



2

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Investigation 2: Anomalous Mutations

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In which evidence is presented of a growing community of “modification makers” spreading in a viral mass. To examine the success of this unstoppable force, the following discoveries were undertaken: A check of early mods, the arrival of the SDK, and the histories of Team Fortress Classic, Counter-Strike, Day of Defeat, Gunman Chronicles, One Hundred Modifications, Opposing Force, Blue Shift, Half-Life: Decay, the Half-Life retail releases, and a timeline of major events in the life of Half-Life.

ART?

Black Mesa,
White Noise

05

“We had the whole company sweating bullets,
bleeding out our eyes for months.”
—Harry Teaseley

►► PART 1: A SHORT HISTORY OF GAME HACKING

HELP WANTED

A few teams looking for help today:

The **Violent Half-Life** team is looking for a modeler, a 2D artist, and a sound guy.

MayheM is looking to turn the maps he's been working on into a single-player map pack like **Metal Gear Solid**, and is looking for help.

The **StarCraft TC** page is up and the team is looking for modelers/skinners, level designers, sound engineers, and programmers.

—Sal "Sluggo" Accardo, "ModCentral News," Feb 27, 1999.

THE MODERN MOD MOVEMENT

Game modifications have become both a gigantic selling force for "official" software and its longevity, and a recruitment tool for the brightest and most original amateur auteurs. Also called "hacking" or "patching," depending on what is being done to the game code, mods have their roots in Steven Levy's trail-blazing read, *Hackers: Heroes of the Computer Revolution*¹. Charting the progress of Bill Gates, Steve Wozniak, and a group of electrical engineers and computer operators from the 1950s to the 1980s, and their attempts to "hack" the electronics that ran their MIT railroad club, Levy first coined the term The Hacker Ethic:

"Access to computers should be unlimited and total.

Always yield to the Hands-On Imperative.

All information should be free.

Mistrust authority—promote decentralization.

Hackers should be judged by their hacking.

You can create art and beauty on a computer.

Computers can change your life for the better."²

Modders correctly predicted the growth of the internet animal by more than a decade, and their mindset was forming, but it took the first game modification to announce the arrival of both computer gaming and subsequent tweaking. The game was Will Crowther's 1972 spelunking classic, *Adventure*, and the mod was done by Stanford University's Don Woods in 1976, adding fantasy elements "such as a troll, elves, and a volcano inspired by Tolkien's description of Mount Doom."³ By the time Steven Levy's book was published, many computer users were fiddling with their own MUD (Multi-User Dungeon) text adventures, switching the settings to realms of their own (or Gene Roddenberry's) invention.

Fast-forward to the Namco *Pac-Man* board hacking, resulting in *Ms. Pac-Man*, and the infamous "Barney" rendition of *Wolfenstein 3D*, starring the purple dinosaur, not the Black Mesa guard. This prompted id's John Carmack to arrange *Doom*'s code in the form of "wads" to make modding easier, and level-editing programs began to surface less than a month after *Doom*'s release. These *Doom* editor utilities paved the way for *Quake*'s source code manipulation, and at the forefront of this were the *Team Fortress* modders—to such an extent that after the original *TF* release, it was being played online as much as the original *Quake*.

Valve saw the prospect of licensing the *Quake* engine (which involved cash transactions; Valve was to make money by releasing *Half-Life*), then turning around its rendition of the engine and releasing an SDK (software development kit) as the continuation of the modding scene, with one engine-manipulation program at its heart.

Valve wanted to enhance not only the mod community, but also some of its notable home-brew developers. Valve's Doug Lombardi explains: "Having people like John Guthrie, Steve Bond, Dave Riller, Robin Walker, John Cook, and all those guys come from the mod community... It was almost like an instinct that we were going to [hire them]." Valve had heard the early modders' cries for uniformity in their development kits, too. "All these guys had said, 'When I was doing this stuff for *Quake*, I always wished that there were X, Y, Z available.' We thought mods were cool, we hired a lot of those guys, and we were going to try and support that community to extend the life cycle of the games and hopefully find more people through this recruitment method. That was a very conscious decision prior to the release of the game. It was strategically decided upon."⁴ >>



The first release of *Team Fortress Classic* was completed in three months and was used to test Valve's simultaneously released software development kit.



Action Half-Life



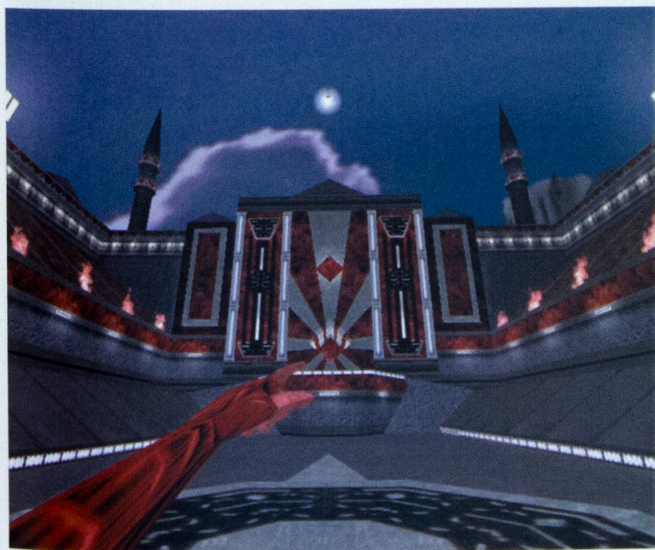
Chemical Existence



Counter-Strike



Gunman



Kanonball



Science and Industry

The six games that started it all. Demoed at the first ever Mod Expo in July 1999 were *Action Half-Life*, *Chemical Existence*, *Counter-Strike*, *Gunman*, *Kanonball*, and *Science and Industry*.

JEDI NIGHTMARE

Jess Cliffe, one half of the creative force behind *Counter-Strike*, applauds the originators of the scene: "I think you have to look back to id [Software] for [its] great foresight. It was in the early '90s, and modding was basically their baby. The great thing about Valve was they took that and ran with it, and kind of upped it." But not every software company took the same view of free software based on its game franchises, as Jess discovered before he made the switch to the *Half-Life* SDK. "It's interesting the enlightenment that companies have had over years. As late as 1997, a bunch of guys I knew and I were in a *Jedi Knight* group. We had websites related to *Jedi Knight* and we [knew we] just had to make a *Jedi Knight* mod. We were really hyped up about it and we had all these ideas; we started working on it with all these kinds of hacky tools that the community had because there wasn't really anything official."⁵ They were using LucasArt's proprietary engine that ran the game.

"It was so funny, because we were so hyped up. And then we got a letter from LucasArts' lawyers, a Cease and Desist Letter. We were stunned. We [had] this drive and we're ready to do it, and we got this letter from their lawyers!" Shock turned to outrage: "How could they squelch such zeal?" Halting all LucasArts-related modding, Jess waited a year for a company with a different mindset.

"Valve was a safe haven for these underground grass-roots communities that wanted to build their own stuff. Not only were they saying, 'Hey that's great!', but they were cultivating [a following] with tools and support. We would email Rob Walker and John Cook, and I'm thinking, 'We are having an issue with our code, it's crashing...they're never going to respond.' A few hours later they respond and say, 'Oh, you want to do this with the code—change this and it'll work.' They even helped us debug it themselves sometimes, which was incredible. So, it was a conscious decision that they knew this was going to be important, they knew this was going to be cool, there was going to [be] innovation there. So they did everything in their power to support that. And that made a huge difference for all the mod makers back then. When they saw this, they wanted to make mods on Valve games. If you look back, it seems kind of silly, but *Half-Life* versus *SiN* was the big debate." Both the games were stand-out successes, but the community had one thought: "Well, which game do I want to make a mod for? It was the actions of Valve that drove a lot of people to that engine."⁶



Mod makers: Keeping Valve on its toes since April 7, 1999

FINISHING FORTRESS

Inside Valve's offices, work didn't stop after *Half-Life* shipped. Quickly completing multiplayer and modder projects was a top priority, as Valve's Yahn Bernier remembers: "I worked with what we called the 'online content' team to deliver *Team Fortress Classic* and the *Half-Life* SDK. That team continued to support and grow the *Half-Life* online community. Around that time I also started working on the core of a new networking model for the engine. That work was rolled into a bunch of other work related to making the *Half-Life* engine a great mod platform. We called that bunch of work the *Half-Life* SDK 2.0. The main networking contribution was the creation of a robust weapon-prediction system and a corresponding server-side lag compensation system. Details of that system were presented at [the 1999] GDC [Game Developers' Conference]."⁷

Another member of the team, Erik Johnson, remembers that Valve took a breather to formulate a plan after the game's manic shipping. "We always knew that mods were really important, but in shipping *Half-Life* and the month after, when we were relaxing after going through [that] pretty traumatic experience, we wanted to do something to really kick off the mod community. Clearly it was something that was pretty important for us as a company. So Robin and John had this great idea: We'll just take *Team Fortress* and we'll port it to the *Half-Life* engine, and it'll only take about a week or two. And I worked on that project with them, and it was a pretty intense three months of development and playtesting."⁸

While Erik constructed *TFC*, Ken Birdwell was working almost in parallel with the source code, slotting in a redesigned level-building tool once called Worldcraft, and now known as Hammer. "He was making it ready for general consumption as part of the SDK. This was a pretty huge amount of work because it wasn't something we were thinking about all that clearly during *HL*'s development. It was just 'make this work;' we didn't need to deal with 20,000 people writing code on top of this platform. So Ken was the developer who was servicing the *TFC* team with the SDK. They tried to build *TFC* on top of the SDK as an example. So a lot of good things came out of that." Not least of which was the ability to see development through a mod-maker's eyes.

"A million little lessons were learned with *TFC* because we saw what it's like to be a mod-maker; we were very much mod-makers on that project."⁹ At the first Mod Expo in 1999, Erik remarked to Sal Accardo that "when we shipped *TFC*, it felt like we'd shipped another game. We had to take a step back and look and say, 'We just shipped that away for FREE!'"

"We had the whole company sweating bullets, bleeding out our eyes for months,"¹⁰ Harry Teaseley said at the time.

PART 2: IN MOD WE TRUST

"An early beta of *Counter-Strike* has been available for a few weeks now, and has attracted an amazing amount of servers, even in its early form."¹¹

—Sal "Sluggo" Accardo, reporting from the first Mod Expo, July 29, 1999

Valve completed a lengthy dissertation called *Free Advice* on the factors to consider when attempting to create a perfect mod.¹² In addition, Valve holds an annual Mod Expo, where between five and seven of the most promising game mods are shown off, and *Counter-Strike* bouts are fought, thanks to the partnership with the Cyberathlete Professional League, or CPL.

Erik Johnson remembers the impetus for the event's conception: "We had this idea in the months after *HL* shipped when the mod community really started to pick up, and there was this game that was getting a little more popular than the rest called *Counter-Strike*. Then there was *Action Half-Life* and *Gunman*.... Those were the first three big mods. It was fairly easy for us to round up a bunch of people in the press, [but it wasn't] very easy for a bunch of mod teams to go do that, so we got everybody down in San Francisco to come look at these mods. That was a big success."¹³ Once picked, two of the games were destined for success, while *Action Half-Life* continues to garner a loyal following.

Industry veteran Sal "Sluggo" Accardo was covering the first event. He had launched ModCentral, one of the premiere online destinations for modders, on September 13, 1998, in a preamble to *Half-Life*'s launch. Now he was there for *3DActionPlanet.com*. "*Half-Life* had just been released in November 1998, and mod makers—many of whom had spent most of 1998 working on *Quake II* mods—had anxiously been awaiting the release of the *Half-Life* SDK, which arrived much later than expected, in spring 1999."¹⁴ Sal was correct; even Valve was surprised at the ferociousness of the enthusiasm, and attempted to stem the flow of requests by implementing a "soft-release" of a "mini-SDK" on November 26, 1998. >>





TFC + SDK = 1EE7

This was followed by one of the first ever *HL* skins (based on the Too Much Coffee Man comic character) and a custom map called “The Hill” on December 4. At the same time, there were rumors that Valve was in talks with one of the first *Half-Life* mod-makers, the *Action Half-Life* team, to switch the game from the *Quake* to *Half-Life* SDK. More mods followed on December 8 (including *Area 51*), and on January 2, 1999, the mini-SDK was updated to fix minor problems. Valve was still simultaneously working on the SDK and *TFC* at a frantic rate, and released both on April 7, 1999 as part of version 1.0.0.9 of *Half-Life*¹⁵. It was at this point that initial modders began to test out the new tools in different ways, as Sal recalls:

“Many mod makers hunkered down and embarked on super-complex projects, but the *Counter-Strike* team did something extremely smart: They got a really rough version of the mod out to the public immediately. At the time, *Action Quake 2*—a mod that CS team member Gooseman did weapons models for—was one of the most popular mods going, essentially a team deathmatch mode that played a lot like *Counter-Strike* without the objectives and weapons purchasing—two teams playing last-man-standing. Releasing the first version of *Counter-Strike* quickly allowed the team to tap into that audience, and with so few mods available, they built up a following in a hurry.”

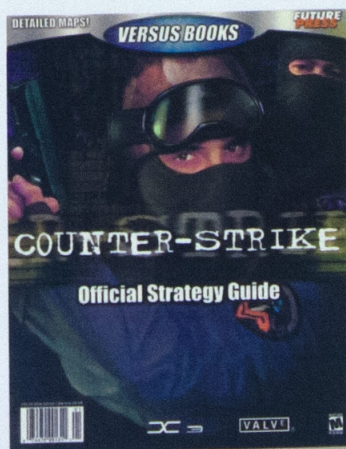
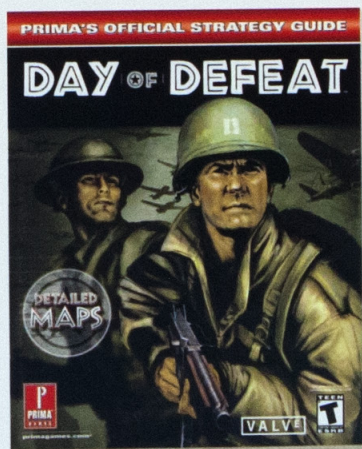
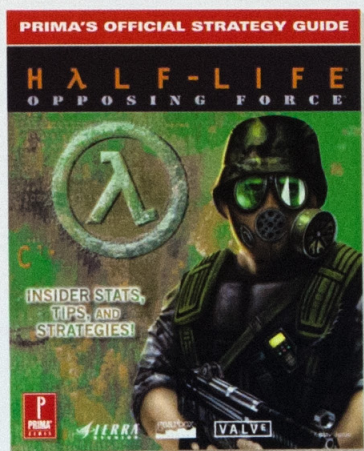
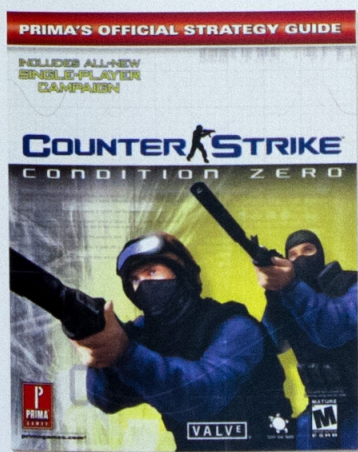
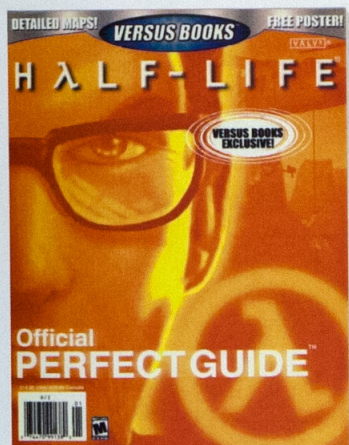
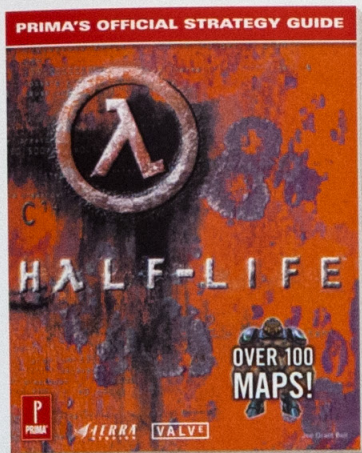


MODDING LIKE IT'S 1999

Counter-Strike was undoubtedly the star of the first Mod Expo. Sal again: “Looking back, the six mods at the initial Mod Expo represented a nice microcosm of the future *Half-Life* community. Some multiplayer mods, like *Action Half-Life* and *Science and Industry*, eventually released and had moderate success. There were two single-player mods at the expo: One, *Chemical Existence*, was eventually released and was about the size of either of the two *Half-Life* mission packs. The other, *Gunman Chronicles*, eventually turned into a retail game released by Valve and Sierra. Obviously, *Counter-Strike* became a massive success. Interestingly, the mod I was most interested in—*Kanonball*—probably took the longest before release, and never really caught on.”¹⁶

“Obviously, for a lot of the mod-makers, the first Mod Expo was pretty exciting. Although previous games allowed varying levels of editing, the present-day mod community was more or less birthed in 1996 by *Quake*, continued with *Quake II* and *Unreal*, and having a developer fly a number of teams out to San Francisco for a special press event was more or less unheard of. Most of the mod-makers were just regular Joes—professionals or students fiddling around with game development on the side—and they were all pretty happy to show off their games.”¹⁷

And it was the type and style of games that fueled Gabe Newell's enthusiasm. “A lot of the reason ideas get stillborn in commercial development is that they have to go through so many filters,” Gabe told the assembled crowd at the show in July 1999. “It's like ‘No, we can't have a Kung-Fu RPG’, or a first-person sports game, or whatever.”¹⁸ It would be six years before the first commercial Kung-Fu RPG—BioWare's *Jade Empire*—was announced. Erik Johnson champions this originality: “Now we realized that we have to do this every year, since it was defined as the annual Mod Expo, so we worked toward finding mods that have a great deal of originality in their game design.”¹⁹



A NATURAL PROGRESSION

Valve has spotted a trend in mod-making, as Erik clarifies: "The mod community is almost two-headed. Half of it seems to want to make derivation work [from] other existing popular titles, and the other half wants to go off and make the most insane wacky thing that you can imagine, and then everything in between. We tried to choose a little bit more on the more 'original and everything in between' fronts."²⁰ Valve's particular favorites include *International Online Soccer* and *HL Rally*, which show that gun-laden combat isn't the only way to go in creating an inventive title.

Distilling the advice Valve has given mod makers over the years, Erik offers the following tips for the top: "For us to start to notice a mod developer, they have to ship their mod! That's something.... I mean clearly we have some difficulty in shipping and finishing things ourselves, [so we know] it's a really hard thing to do with software—it's really complicated and kinda scary; it's like watching your child being born." The right mindset helps, too. "For a person that wants to start getting involved in the mod community, [they] should first figure out where their talents are. There tend to be engineers and artists on every mod team, and then there's different disciplines within each that you can be good at. There are plenty of websites that you can go to and find mod teams."²¹

Then there's a natural progression to a successful mod, too. "If you look at John Cook and Robin Walker, two Australians living out among the dingoes, developing their *Q1* mod... this was never something that they thought they'd develop into a commercial entity. They knew how to write some code, and they wanted their friends to come over and play on their LAN at their house. Mod teams nowadays? There's some mod teams that set out from the beginning to somehow be a retail product at some point...." Valve continues to realize the importance of such enthusiasm, and wishes the same success now that *Half-Life 2* has arrived: "There is going to be some pretty aggressive options for mod developers to pursue a commercial game, such as licensing through Steam."²²

It is perhaps the greatest achievement when contemporaries you respect recognize your efforts. Epic Games' *Unreal* series lead designer Cliff "CliffyB" Bleszinski notes that "Valve was one of the first developers to treat the mod community as its own great living, breathing entity instead of letting it languish."²³

Creator of the *Deus Ex* series, Warren Spector has also watched Valve's ongoing commitment over the years: "Valve didn't create the mod scene, but its focus on supporting and nurturing the online community took things to a new level. And no one put such emphasis on quality tools. Tools and caring are huge. It's like they looked at what id was doing and decided to 'turn it up to 11.'"²⁴

With a solid base and a thriving community, there's never been a better time to descend into and build up a fantasy world. But how did we reach this point? You may be interested to know how Valve's dozens of amateur and professional past expansions to *Half-Life* were created—the pitfalls and the triumphs. Welcome to Anomalous Mutations. ■



Domination from Down Under:
Team Fortress Classic

06

“The early *TF* players are really what made the game happen,
just as much as us working on it.”
—Jim Cook



It all began with *Team Fortress*, the first team modification for *Quake* to really bring home the class and team combat gameplay only hinted at with CTF.

►► MELBOURNE MEN AT WORK

Toward the end of 1995, Robin Walker, John Cook, and Ian Caughley were sharing a house in Melbourne, Australia. They were enrolled at the Royal Melbourne Institute of Technology (RMIT)¹. Between work schedules, the trio inadvertently took their university motto—"perita manus mens exculta" ("a skilled hand and a cultivated mind")² and focused all their spare attention on a new type of get-together; Local Area Network parties. Proto-LANs were first steps in the trio's career in modding that would eventually land two of them jobs at Valve and create the first successful homebrew modification in gaming history.

Robin was to leave RMIT and join NEC to write power station communications software, but not before winning three Australian deathmatch events. He was the lead designer for the *Team Fortress* series.

John Cook (the lead programmer) studied computer science to pay the bills before co-founding Team Fortress Software with a smattering of network installation and administration jobs. If you work at Fujitsu, you may still use the software John developed for the company's shop-room floors.

Ian Caughley was the managing director of TF Software, who received degrees in aerospace engineering and computer science, but still managed to run the business end of TF Software while sketching and rendering many of the visual elements in the team's mods. "His most ignominious achievement was declaring the Australian GA-8 aircraft aeroelastically sound two months before the prototype plowed into the turf."³

"We played a lot of games," explains John. "We had a lot of LAN parties and people would come over. For games like *Doom* and *Hexen*, we'd just make custom maps. I remember we'd play *Hexen* where we'd play co-op, so you'd have, I think, up to four people at a time playing through. I'd just sit there and try to make maps as fast as I could, so that the people playing would have something to play through, and then they'd play while I made it. Robin would take turns making levels as well."⁴

Not only did Robin share level creation responsibilities with John, but he was also the host (using the handle "Oxblud"). The 13 people in the Melbourne area to join the Deathmatch Database were beckoned in for linked deathmatches with the words "hope to hear from you!" and "featuring *Doom/Doom 2*, *Duke 3D/Quake*, *Hexen*, *Witchhaven*, *Descent/Descent 2*, *Magic Carpet/Magic Carpet 2*, *Tekwar*, *Warcraft/Warcraft 2*, and *Command & Conquer*."⁵

To give you an idea of how early in the evolution of LAN parties this was, a fellow inviter, one Dennis Katson of Niddrie⁶, coaxed his friends with the following promise and "state-of-the-art" system: "Love a good challenge. 33.6K modem. *Doom* and *Quake* rule! Write to me if you are an interested in and experienced, but not necessarily ruthless player."⁷ But it was id's first-person fragathon that influenced them the most: "We played a lot of *Doom* deathmatch as well and that made us set up networks."⁸

SHATNER'S SHATTERED DREAMS

With this fledgling community hooking up to play increasingly frenzied local-area network sessions, it didn't take long for the team to realize that multiplayer maps for the games they were playing just weren't cutting it. The team knew there were only so many times you could take an axe to a UAC marine in a darkened brown corridor, after running down an auburn ramp and emerging from a mud-colored lake and not wish for some kind of enhanced communal killing experience. As the trio studied the commune of disparate games they hosted, it became increasingly clear that only one action title had a robust enough engine and modification tools (software development kit, or "SDK") to create the type of online melees they all craved. No, not William Shatner's *Tekwar*. It was *Quake*.

The team chose *Quake* because the game was swallowing up more than its fair share of party time and featured characters sporting newfangled "polygons"—it was a brave, new, chunky, and slightly angular world out there. "When *Quake* came out, we heard about all the modding so we started making things for that as soon as the SDK came out."⁹ John confirms, although Robin does mention that the team "did a lot of tinkering with *Hexen*, making maps and scripts. We had this vision of a co-op RPG using its engine, but the vision fell apart when we began to learn the limits of its scripting system. We then tried messing around a bit with *Duke Nukem 3D*'s scripting, but by this time the next generation of engine technology was out."¹⁰ Poring over the scripting, engine, and modification programs released after *Quake*, the *Team Fortress* mod began to gel cohesively. "TF was the game we wanted to play at our LANfests, so we did it first. We had a few others planned, but they never reached fruition, mainly due to *TF* consuming too much of our time."¹¹



The Engineer prior to the *TFC* makeover

TRICKLE-DOWN FRAGONOMICS

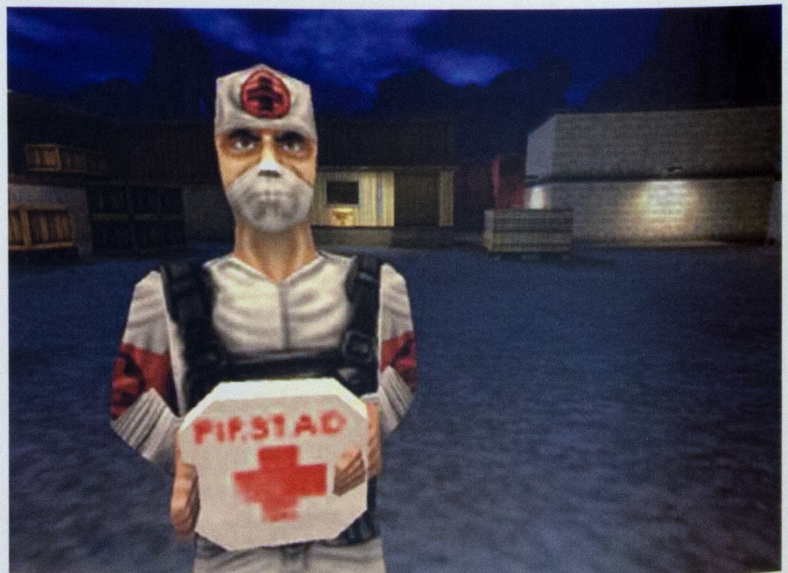
Taking the name of one of their favorite *Doom* deathmatch maps—Fortress—and adding the fact that they were designing a game to be played by two opposing forces rather than a mad free-for-all—Team—the name of the trio's mod and company were born. Three months after they first received the *Quake* SDK, on August 26, 1996, *Team Fortress* was born. It featured only five of the eventual ten character classes (the Scout, Demolitions Man, Combat Medic, Sniper, and Soldier), and to those who gravitated away from the overly dangerous Soldier, it provided the team with an email tray full of "constructive criticism."

"The reason that the original *TF* didn't stop at version 1," remarks John, "was the feedback from people playing it. We just got a few emails here and there, then we release another version, and then there was a huge trickle...really that was a huge motivator early on...the early *TF* players are really what made the game happen, just as much as us working on it."¹² >>

But the team wasn't sure that the project would achieve even a modicum of success. According to John: "We never had any idea that it was gonna do well. The first version we didn't announce to anyone or tell anyone about; we just uploaded up to the CDROM.com FTP site, with a list of 100 other files, and people can browse through them. And then we just started getting mail about it."¹³ When the local (and soon, worldwide) community began to download *Team Fortress*, they made note of the Soldier's arsenal of weapons (every *Quake* piece of kit except the grenade launcher, and too much armor), the too-slow Sniper (whose rifle took three seconds to reload, although it did manage to take out anyone except the Soldier and Demolitions Man with a single shot). And they told the team about it. They most certainly made their voices heard.

"Why does the server lag when I'm throwing the nail grenade?" "Why did I die while reloading or reeling back from an attack?" "How about a Pyro with napalm grenades?" The team sifted through these types of comments and went to work on a new and improved build of the game as soon as they could. The next version, 1.1, revealed the soon-to-be cover star of the game, the infamous Heavy Weapons Guy in all his plodding, gut-busting glory. Version 1.2 saw the inclusion of the amusing, yet irksome bio weapon. Version 1.3 included the Pyro, bringing the available classes to seven.

Quietly constructing Beta build after Beta build, the team cranked out Version 2.0, which was a real milestone as it helped connect fragsters from across the globe, being compatible with *Quakeworld* (the internet multiplayer-specific version of *Quake*). By the next version, the team toyed with the idea of a man in civilian gear carrying an axe (and later in *Team Fortress Classic*, a crowbar); the "president" character was born and would be used to brutalize and embarrass new players with melee weaponry for years to come.



A selection of class types available, prior to the *TFC* makeover. From top to bottom: Sniper, Engineer, and Medic.

TOO MANY BETA BEATDOWNS...AND 2FORT

By the time *Team Fortress* had reached Version 2.5, the final two characters (the Spy and Engineer) were born, while the old favorite—the Sniper—could now inflict body-specific damage. The next Beta fixed the cheat where Demo-men, or Engineers, could build sentry guns, then change characters, and the guns would still be active. Although this was an obvious glitch to the game, the sheer number of remarks the community was generating, plus the grand plans that were hatching and the fact that the evolution of the modification clans meant the team didn't outsource level design, meant that game balancing was an ongoing issue.

The plans were grand; in fact, Robin quoted his own readme file for *TF 1.0*'s release, stating the team was working on: "More classes—Technician, Observer/Referee. More items—Personal Teleporter devices, Deployable autocannons, Jumpjets, Personal Shields Generators, Rebounding Shield, armor protecting against specific weapons. More weapons—BioDiseases. More grenades—Shock grenades, Teleport grenades, skins for each class, Models for all weapons and grenades, and some maps built specifically for this code."¹⁴ The team never got around to these ideas, but they did manage to cram their code into their next release milestone—Version 2.5 on June 13, 1997, after more than 16 iterations of the mod.

While today's mod makers, and even those who sought to formulate incredible modifications after *Team Fortress* (such as *Counter-Strike*), plead with level designers to fashion their ideas into a living, breathing landscape, the Aussie trio blazed the trail with no such luxury. Instead, they plowed any remaining resources into their most influential (and popular) stage: 2Fort. This map alone went through at least six variations. It was responsible for the entire metamorphosis of the game, and still stands as one of the genre's classic stages. John tells the story of its creation.

"One of our favorite levels for *Doom* was a map called Fortress. It was this two-on-two teamplay map that in a lot of ways really got us thinking about that kind of play. That and *Hexen* led us to making a class-based multiplayer competitive game. Then we were going to try to remake the map Fortress but it ended up taking a totally different shape and I made 2Fort instead. The success of 2Fort is because that was the map that we developed the game on. That's what we always played; I made a few other maps that were pretty much disastrous follies. The classes evolved around the level, and the level evolved around the classes. It's natural to assume that any map made with that sort of process would have been popular."¹⁵ >>

An early *Team Fortress Classic* screenshot, circa 1999



CHEERS, BEERS, AND ARREARS

By the time the build had reached Version 2.9, on October 23, 1998, with the final *Quakeworld* server release, the *Team Fortress* team had (more or less) created a modification they could be proud of. They'd temporarily given up on their college education when they formed their company, TF Software, and sought digs where they could game and code together. The house in question had "five bedrooms, and we had four people living there at one stage because we didn't have any money." Life as a computer game developer involved strict budget regulation, as John reveals: "I think the income we paid ourselves from the company was like \$10,000 a year [Australian—around \$6,000 US]. . . . A pretty pitiful amount. . . ."¹⁶

"We were living off bread and pasta and stuff. It was just packed and we had rooms full of computers and it was a permanent LAN party, I mean there was always at least someone there who just was there playing games or on our Internet connection and we'd play *Quake* all the time. It was a lot of fun. . . ."¹⁷ As the success of *Team Fortress* grew, the visitors to the house ranged from local fans to some unexpected tourists. One of John's favorite, and weirdest, memories of the good old days was when "we had a guy just drop by our house with a six-pack of beer. He gave us a six-pack and said, 'Here, thanks for *TF*. I'm a contractor from the United States who's coming over to Australia for a few days and I tracked down your home address with the DNS registration, so alright, see ya later. . . .' He just gave it to me and left."¹⁸

The character classes, before and after their extensive makeover



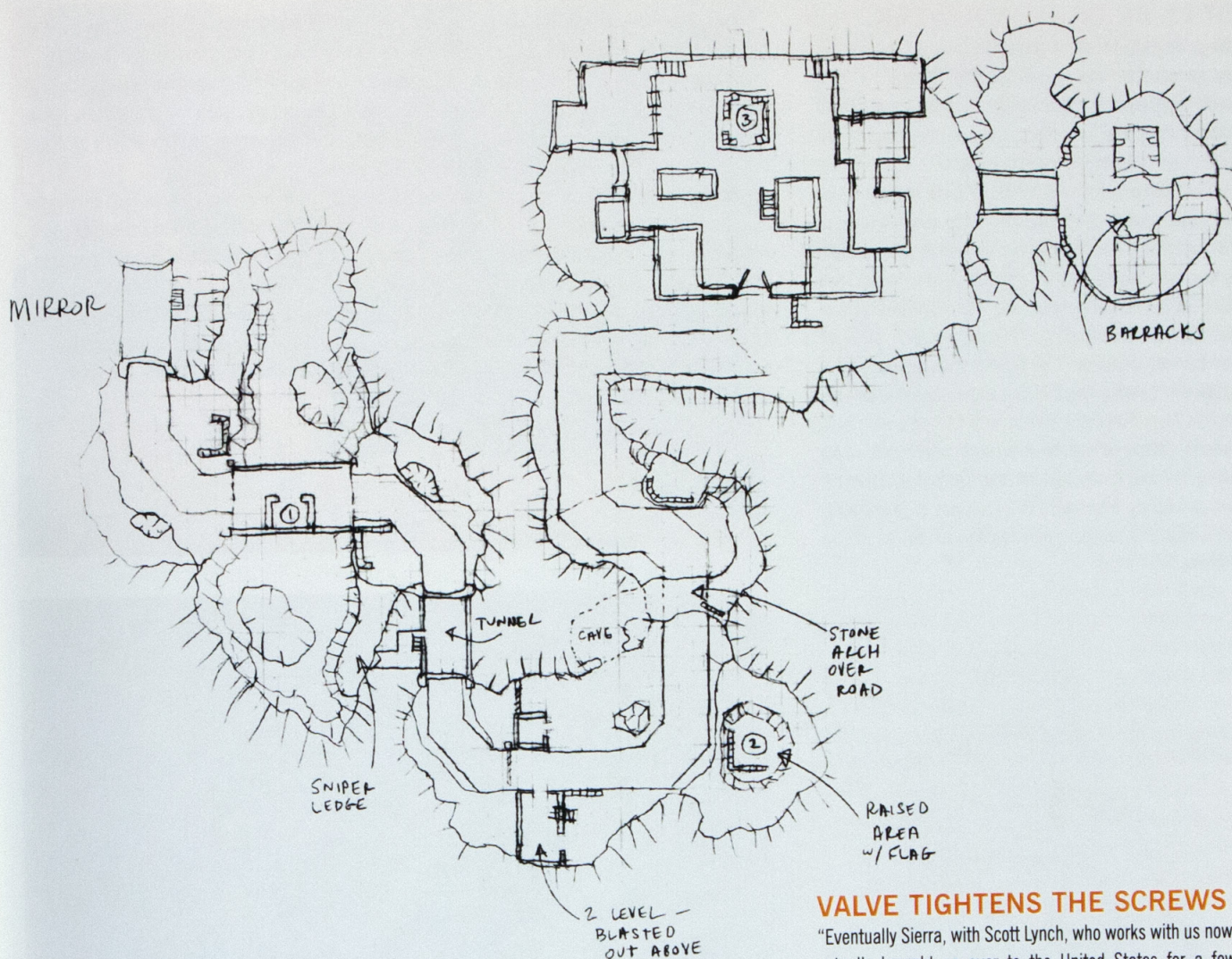
THREE'S COMPANY: THE BROTHERHOOD IN ARMS

Taking the immense step of turning into a professional development house all started when the team began to playtest the *Quake 2* version of *Team Fortress 2*. John remembers, "with *TF* getting pretty popular online, it became the most popular *Quake* mod after awhile. We'd gotten a lot of interest from publishers."

Activision in particular (especially as they had recently partnered with id Software) were "wanting to know what we were going to do next. Other game companies wanted to know if we were looking for employment. That was all pretty interesting." Robin and John were gung-ho about the operation, but Ian's enthusiasm was a little tempered. "He was kinda involved; he'd always play with us and we'd talked about game design."¹⁹

Now courting major software houses, the trio made an important decision: "Once we got all this interest, the three of us decided that we should start a company." This was followed by a second important decision: "We all dropped out of college." TF Software was born with a single unerring purpose, ironically to "pretty much make *Team Fortress 2*." The aforementioned "big house" in Melbourne was rented, and with "a pretty small amount of investment," the scheme was up and running. While some of the team took turns to code their increasingly robust build of *Team Fortress 2*, others carefully dealt in gaming industry publishers.

John is a little more straightforward with his description of what his company spent the end of the 1990s: "I think the company lasted about 16 months with us futilely trying to make deals with publishers and whatnot, trying to just learn the whole ropes of the gaming industry, which was a pretty hard thing." The stress began to build. "You have absolutely no idea," remarks John. "I think Robin and I were 19 and 20 at the time."²⁰



A sketch and screenshot of Warpath



VALVE TIGHTENS THE SCREWS

"Eventually Sierra, with Scott Lynch, who works with us now, actually brought us over to the United States for a few months because they had this thing, *Half-Life*, in production." Adjusting to the Seattle weather and Valve's offices was one thing to John and Robin. Emigrating to the other side of the world was quite another.

Scott Lynch and Sierra stated matter-of-factly that "TF2 should be an add-on for *Half-Life*" instead of *Quake 2* simply because both titles were owned by the company. The trio still wanted to develop TF2 for id, but in the end, Sierra won out. "They brought us over here for three months to work with Valve, so we came into their offices and they set aside a space for us with the intent of working on TF2 for id as a separate add-on pack, and to help them formulate their mod strategy."²¹

John and Robin placed *Team Fortress 2* in a holding pattern (to which it unfortunately remains to this day), and dived into tweaking the structure of *Half-Life* to make it "a better mod platform based on what we knew from the community." Their ideas must have carried some weight. "After about two months of being here, Gabe Newell called us into his office one day and said, 'We'd like to buy your company,' and we discussed it and decided it was a good idea." It meant disbanding TF Software, and slimming the team from a trio to a duo. "Ian didn't want to leave Australia quite yet."²² Robin and John, meanwhile, were immediately drafted into finishing *Half-Life*. >>

"IT'LL BE DONE IN A WEEK."

"When we came here it all got a little confused because we just got rolled into making *Half-Life* ship. There pretty much wasn't anything else happening then." Once the headcrab piñata had hit the floor, discussions on the future of the *Team Fortress* franchise began in earnest.

The main question was "what is *TF* now that the structure has changed?" Naturally, the modification was part of the Valve/Sierra family now, and to garner interest from gamers who played the still-popular *Team Fortress* and pump up the support and ongoing dedication to buyers of *Half-Life*, an enhanced, or "Classic," version of *Team Fortress* was announced. "We decided that there are a lot of people who haven't played *TF* yet, and at the same time we decided *Team Fortress 2* should be a full game and *Team Fortress Classic* should be a present to everyone who's buying *Half-Life*. It was also part of the SDK effort to help the mod community. It seemed like a good way of getting *Half-Life*, mainly a single-player game, to be an online platform."²³

Days after *Half-Life* shipped, Valve delivered gameplay and modification innovation to the one area that *Half-Life* lacked: online multiplayer. John and Robin were confident it would take them a week.

In hindsight, they agreed at the end of 1998, that a port-over of *Team Fortress* from the *Quake* to *Half-Life* engine was, perhaps, a little enthusiastic. John agrees. "We thought, 'yeah, we're just going to port everything over.' But obviously even when you know exactly what you want to do there's still a lot of just technical problems; we're always over-ambitious."²⁴

Sierra's PR department announced on January 13, 1999, that "*Team Fortress Classic* is to be released for *Half-Life* at the end of January."²⁵ It was touted as part of a wider series of updates for *Half-Life* fans, which included "new multiplayer maps, player models, a new team-play mode, and significant improvements in Internet bandwidth utilization."²⁶ The newly christened "*TFC*" was to be "a direct port of the original *Team Fortress* developed for id Software's *Quake*. Its innovative gameplay, character classes, and mission variety contributed to its enormous popularity, with over 500,000 downloads of the add-on from a single FTP site. *Team Fortress Classic* will include two entirely new maps."²⁷ But those still loyal to the *Quake*-based original needed some reassuring.



FLAMETHROWERZ



MACHINE-GUNNER

PLAYS JUST LIKE TODAY'S TEAM FORTRESS— ONLY BETTER

"We wanted to introduce *Team Fortress* gameplay to the *Half-Life* community and give current *Team Fortress* players a glimpse of some of the new technology we'll be using in *Team Fortress 2*," noted Robin on the same day the *TFC* news hit. Although *Team Fortress 2* was to see years of delay as other projects took priority, the "beautifying" of *Team Fortress* was more important at the time.

Robin continued to note the improvements made after moving the game from *Quake* to *Half-Life* source codes and jazzing up the graphics; "we were able to take the original *Team Fortress* add-on for *Quake* and port it to *Half-Life* as a way of testing the *Half-Life* software development kit. *Team Fortress Classic* players can now enjoy *Half-Life*'s superior graphics and audio, ease of use, and advanced animation technology."

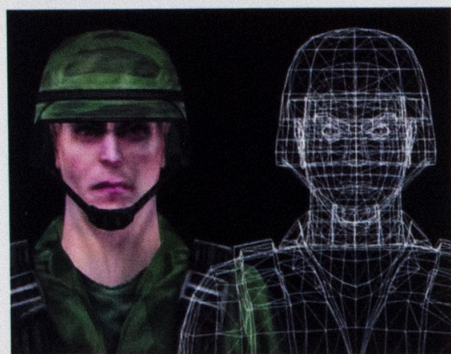
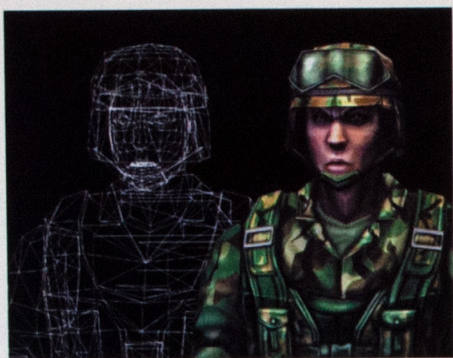
With the enhanced graphics and similar addictive gameplay, even the majority of the notoriously prickly fanboys were pleased. "This is a great idea!" Dave "Bundy" Carter of "one of the Internet's leading *Team Fortress* Clans" enthused. Furthermore, Carter prepared for more excitement at the thought of "finally playing *Team Fortress* with viewable weapon models, decals, D3D acceleration²⁸, and all the other great *Half-Life* engine functionality." *Half-Life* players who haven't yet experienced *Team Fortress* will find it much easier to get into, and once they play it they'll understand why it's one of the most popular multiplayer games on the Internet."²⁹ He encapsulated the improvements that *Team Fortress Classic* was to make over the original, and Valve and Sierra couldn't have said it better themselves. Carter's enthusiasm was a key part of the press release in trying to maintain the grass roots support.

With the looming release of a bona fide addition to both the *TF* and *HL* universes, the gaming press helped bring the game's attention to a larger audience.

Although "*Team Fortress Classic* has exactly the same gameplay as *Team Fortress*," Robin told Blue from Bluesnews.com, it sports "all new graphics. Chuck Jones is doing the models for the player classes. Steve Theodore is doing new weapon models. We could have kept the existing *Quake* weapon models, but we had the bandwidth for Steve to do new ones. John and I worked on it over Christmas break. While we've had to help get some SDK issues sorted through, it will have been a couple of weeks of our time when everything is said and done." Asking when the game would be released, Robin responded with "We're up and running now, and are spending our time debugging and finishing up the artwork. We will work with some of the *Team Fortress* clans to run a Beta test."³⁰ >>



In May 2000, a variety of early *TF2* screenshots surfaced that would later influence the *Counter-Strike* map *De_Dust*.



Polygonal mesh-work gave the soldiers in *TF2* a more impressive visage.

THREE MONTHS OF MADNESS

Dispelling worries of some of the original practitioners, Robin told TeamFortress.com they were sticking “as close to the original as possible, our goal being to preserve the gameplay over all else. Wherever possible, we’ve used the extra capabilities *Half-Life* provides us to make it look better and run faster. *TFC* is far more network friendly than *Quake TF*, for instance. Our second goal is to make it as approachable as possible for all the new *Half-Life* players who’ve never seen *TF*. There’s a couple of features, like crouching, that we’ll do some playtesting on and see whether we can include them without breaking the *TF* gameplay.”

The cheating problems that were plaguing the *Quake*-based original were also handled, but with less success. Robin responds: “We had much more control over the engine and the client now. Obviously, we did everything we could do to make it as uncheatable as possible.”³¹ However, it was to take nearly four years to purge the last of the cheating undesirables into the ether; *Team Fortress Classic* Valve Anti-Cheat (VAC) support was available on Steam-powered servers by September 30, 2003.³²

The team decided to use “hit location damage for the sniper rifle, like we did with *Q TF*. We’re not using it for anything else.”³³ They kept most of the weapons, such as the sniper rifle, working just as they did rather than utilizing the firing rates and mechanisms in *Half-Life*. The maximum players online remained the same, as did rocket and grenade jumping; a fine technique pioneered in *TF* and now used in pretty much every first-person shooter deathmatch since. Naturally, the team included the fifth iteration of the fabled 2Fort map, too.

Simultaneously, Robin, John, and the rest of the team tested the SDK functionality using *TFC*. Days later, the ambitious team realized that allowing a week to port over the game was a tad improbable. “At first we were just trying to make as quickly as possible a port of *TF*,” John reminisces with a slight shake of the head and a faint smile, “but the *HL* engine is distinctly different, and there’s some very subtle things like physics constants, just tweaked here and there, so the same balance wasn’t going to apply. We spent time turning back some of the speeds a little and stuff, and we had a lot of playtesting internally.”³⁴

Throughout the winter of 1999, it was clear that Valve’s extensive reworking on the *Quake* engine for *HL* had meant that turning the game’s conversion around in a week was a little on the optimistic side.

The most recent version of *Team Fortress Classic*, after the extensive graphical overhaul, features less cartoon-like visuals, and a lot more intricacy on the levels, as well as character camouflage.



COMMUNITY, CRACK-UPS, AND COMPLETION

The community was content to wait while Valve finished the main game by the end of March, then steadied themselves as they realized *TFC* needed "simultaneous releases in all languages... Once that finishes up, we're going to do final acceptance testing on all the different language versions for 24 hours, and then release."

The final agonizing days of delay were always offset with good news, such as this news from April 2, 1999. "There will be a new map in the release, called Push. We were going to keep this a secret until the release went out the door, but in a desperate attempt to reduce hate mail, I'm going to try to buy you off with this information." To further discourage an all-out mutiny, the unknown Valve damage controller also mentions the very first piece of positive "professional" press: "The *Team Fortress Classic* review in today's issue of *USA Today* gives it 4 out of 4 stars, calling it 'incredible' and 'spectacular', and saying it 'rocks'! Remember, *Team Fortress Classic* will be the BEST FREE GAME you've ever played!"³⁵ Just five days later, the rest of the world was beginning to agree with the game receiving more positive press, calling the release "the single best multiplayer action game of all time."³⁶

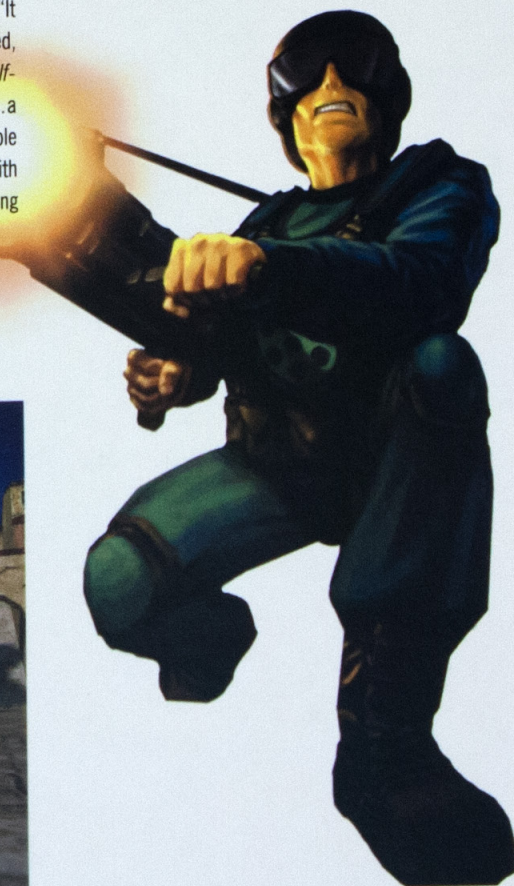
Both John and Robin are working on the user interface for *Half-Life 2* and *Steam*, but still occasionally bring their sentry guns to bear with some rousing LAN parties, just like the old days. "My favorite character would have to be the Engineer,"³⁷ states John (Robin usually goes for "the Scout or Soldier"³⁸). "The Engineers are very effective with their EMP grenades and what we do is we tend to join on the LAN and Eric Smith and I do offensive sentry gunning, where we lock people down in spawn rooms with sentry guns... I know most of the places where it's good to hide a dispenser so I can have enough of everything ready that I need to get a sentry gun up to level 3 really fast."

As for the weakest characters, "I enjoy playing a lot of them, but... We made some tweaks to the Pyro to make him more useful but I don't think he's really... I don't think he's quite there. He really could have used another feature or another weapon. In the original pass on him in *TF* he could lay flames down on the ground in a lot more places, but the networking just... it just wasn't functional on a modem so... that kinda got killed."³⁹ Even after more than seven years, old game foibles die hard.

"Woo hoo! It's finally here!"⁴⁰ sang the modification community on April 7, 1999, as the free *TFC* began to be downloaded thousands of times. Radium, a site dedicated to new modifications, launched its own "*TF Radium*" on the same day, where map-modelers and other creative types could add to the *TFC* experience. And in the intervening years, they have.

Even though the game debuted back on August 26th, 1996, and its big retail brother bundled with *Half-Life* (now known as *Team Fortress 1.5*) almost three years later, there are still tournaments, LAN parties, new levels, and countless other modifications now that the *TF* phenomena is more than eight years old. "It was rewarding in that we cranked it out in three months," John laughs, thinking back to the turmoil involved, and he's happy that he was instrumental in introducing the gaming public to the first real test of the *Half-Life* SDK and multiplayer capabilities. "There was a lot of just sort of basic functionality, a lot of details... a lot of things that we needed to expose in the API and just how we prepared the SDK to make it easy for people to look at and understand how they were gonna go about doing things... *TFC* helped us with that."⁴¹ With the three-month intensive course in converting *TF*, Valve had massaged its SDK and completed a defining (and free) multiplayer concept that mod-makers would pay homage to for years to come. ■

The crouching HW guy from the original *TFC*, his retextured equivalent, and the box art.





Man Down!
The Coming of *Counter-Strike*

.07

“We just didn’t think it would be popular because back then no one really wanted to play that realistic of a game in an action setting.”
—Jess Cliffe



Originally a CGW magazine cover, this stroll through Italy eventually graced the *Condition Zero* box.

► PART 1: COUNTDOWN TO COUNTER-STRIKE

WHAT'S IN A NAME?

The date was March 15, 1999. Minh Le (a.k.a. "Gooseman") had just typed his last ICQ missive to Jess Cliffe ("Cliffe") about what to name the *Half-Life* modification they were working on together. Progress on the project was drifting along, despite the fact that the plan to fashion a terrorist/counterterrorist gunbattle had only begun with some semblance of seriousness two weeks earlier. The ease with which the *HL* source code could be manipulated meant that two college kids would manage, in their spare time, in a matter of only a few months, and with the help and support of level designers from the mod community, to create the most popular online first-person shooter ever seen.

Cliffe points out that he and Le were earlier acquaintances, having met while modeling characters and scenery for *Action Quake 2*. They trusted each other to deliver their ideas, having shared the dreams of developing a mod based on close-quarter fighting with the emphasis on one-hit kills, real-world environments, and special operatives rather than health packs, lava pools, and big guns.

"When Minh and I met working on *Action Quake 2*...we had both been interested in doing a more realistic mod," Cliffe continues. "So, he and I had both been interested in the whole realm of counterterrorism obviously before it became such a big issue here in America. Since the mid-'90s we wanted to do mods based on the theme because we thought it was so interesting. That's what we were reading about, that's what we were interested in, that's what grabbed our attention, and we've been doing it ever since."¹

What's in a name? The success of luring interested gamers outside of the fan-base into a world of tactical takedowns, that's what. Before March 15, 1999, *Counter-Strike* could just as easily have been known as *Counter-Terror*, *Counterterrorism*, *Strike Force*, *Terrorist Wars*, *Terror-Force*, or *Counter Force*.² With this short list on their minds, Minh had ICQed in with, "I like *Counter-Terrorist Forces*, myself."

Cliffe typed back, "Methinks it's a bit long.... I think *Counter Strike* is pretty cool."

"Pretty cool" was an understatement. It was a home-run of a name—immediately descriptive without being pretentious, easily understandable, and aligned with the military nature of the game plan. "I like that," Minh responded, "*Counter Strike*... *Counter Strike* it is."³ The hyphen in *Counter-Strike* was added in at a later, unknown date, by mysterious (and grammatical) forces. Both Minh and Cliffe began to dream about their own, inventive, wildly addicting, first-person team title.

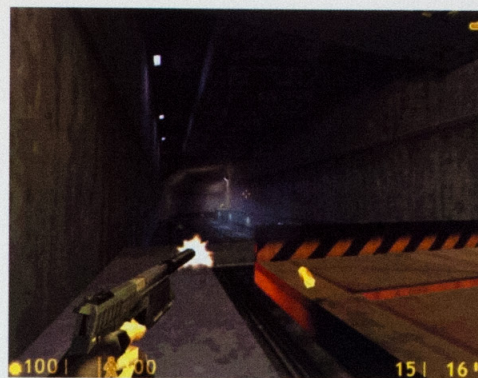
TAKING A GAMBLE ON GORDON

But why bother sapping mental strength and shutting off a social life during college for a *CT* mod? The answer was born from frustration, as Cliffe recalls. "*AQ2* really wasn't the game that we wanted to make. We wanted to make *Counter-Strike* back in the *Quake II* days. But obviously we were part of a pretty large team on *AQ2*, and they had other ideas. They wanted to make the 'action movie' type of mod. And *AQ2* was interesting and kind of weird because it was an action movie-themed mod, but it wasn't like an action movie at all...."^{3A}

While *Action Quake 2* diminished in popularity, Minh and Cliffe looked to other software titles to pique their interest: "Basically, we decided we were done with *AQ2* and we had heard about this new cool game coming out called *Half-Life*. And if you remember back then it was '*HL* versus *SiN*'.... That was the big rivalry, which game would be better? And looking back it seems a little bit strange because *SiN* didn't quite have the popularity that *HL* did." Despite the dreadlocks of *SiN*'s lead raconteur, and the furor of the press leading up to the launch of both titles, the creeping terror of *Half-Life*, geek chic of Gordon, and the robust SDK made this the only game to develop for back in 1999.

Still, there were concerns because of the flood of first-person shooters appearing with different game engines powering them. "Do you wait for *Quake III*? There are so many choices. In hindsight, we were really, really lucky to choose the *HL* engine. And why did we choose it? I'm not even sure we had a clear answer for that.... We banked on this game coming out, being the coolest game, and being the most popular, because back then we knew that if you're making a mod and you want to have many people playing...it has to be based on the most popular game out there, period. If it's not, people aren't going to care...."⁴

One of those first people to care was GameSpy's Joost Schurr, who hosted Minh and Cliffe's official website, counter-strike.net, in the early days on planethalflife.com. The first update from Cliffe read, "You've somehow stumbled upon the *Counter-Strike* mod for *Half-Life* website."⁵ Obviously, the duo was more concerned with toiling away at the game than oiling up their PR machine, and in the first few weeks the site was live, the interest level never flickered higher than a handful of mod fans enticed by the *Counter-Strike* concept.⁶ Minh also sought inspiration from a few of the most critically acclaimed movies of the 1990s, enthusing about *Ronin*, *Air Force One*, and *The Professional* as key influences to the style of the game, adding, "Some of the guns we saw in those movies we added to *Counter-Strike*!"⁷ >>



This left-handed USP firing in a *Half-Life* level is the first ever screenshot of *Counter-Strike*.



An early sketch of a hostage

GETTING INTO CHARACTER

To give those in the community some early indications of just how many Friday nights and Jean Reno ventures Minh gave up to the cause of *Counter-Strike*, he gave an early telefragged interview way back in February 1999, where he talked briefly about his modeling capabilities and workload. "I'm working on weapon models," Minh wrote, "I've made the meshes for about eight or nine of them, and I've animated two of them so far. After the weapons are done, I plan on doing some player models.... I've already got one done.... He's from a Navy SEAL team. A lot of my models are military-oriented, and that's one of the reasons why I left *Action Quake 2*.... There seemed to be a clash of themes."⁸

Later in the interview, Minh revealed the very first in-game model from the game, and proved just how dedicated and embroiled in the embryonic development of *Counter-Strike* he was. "The model, including making the mesh, animating the model, making the skin, et cetera, takes about 40 hours. That's a rough estimate." The results are much better than those models in *Action Quake 2*.⁹

As Cliffe later noted, "AQ2 fans were able to feast their eyes on the crowbar-toting SEAL, complete with two dislocated shoulders...."¹⁰

While Minh continued his quest to add polygons to the shoulder joints of his teams of Kevlar-plated killers, Cliffe pitched in with the design, sound, art, and the semblance of public relations. He also read voraciously about Gabe Newell's interviews throughout the mod community. "The more we read about *HL*, and the more interviews we read from Gabe Newell, we just became more and more enamored," Cliffe recalls, enthusiastically. "Early on, Valve had hired people who had made mods and we just thought that was incredible."





Initial renders of the original *Counter-Strike* characters

Back in the late '90s, Minh, Cliffe, and a host of other hobbyists had watched with a sense of cynical despondency as other gaming companies forced cease-and-desist papers on homebrew game creators instead of offering them employment. When discussing mod-making, Cliffe says, "It wasn't as common as it is today to pluck people from the community and say, 'Hey, you've done great work. Do you want a job?' And we thought that was incredible. Back in those days, mod makers weren't as mainstream. We read interviews with this company who was excited about mods, that were going to support mods, and it just became more and more evident that this was the company, this was the engine, this was the game to go with."¹¹

Minh and Cliffe's hunches were to be proven correct, and to their surprise, low expectations were shattered during creation and beta testing of the game. "The best part of modding for *Half-Life* is support from Valve. Most popular engines these days are moddable and they're each pretty complex. They aren't 'Get in there and give it a go.' You have to do your homework and you have to know what you're doing." And despite the highly complex tweaking both men were attempting, it was great to know that Valve was there every step of the way—even when the duo didn't know it.

"I'll never forget back in the early days of *Counter-Strike*....," Cliffe remembers with a mixture of fondness and incredulity, "...our dedicated server was crashing every couple of hours, and we could not figure it out. And we emailed Valve Software thinking to ourselves 'Oh, well. They're never going to respond. This is crazy. We're just going to have to figure it out ourselves.' But we couldn't; we were pulling our hair out, and it was causing a lot of tension because we couldn't get our dedicated server stable. Then, a couple hours later, Robin Walker¹² took a look at our code, emailed us back the fix, and it was fixed, just like that. We were just dumbfounded. We couldn't believe it. And that's just one example.... We're sitting there saying, yeah, we made a great decision, going with this engine, going with this company."¹³ >>



In-game screenshots of the first Seal model



Players had a difficult time distinguishing between the Counter-Terrorist and Terrorist models in the first few Betas.

Dust by Dave Johnston, Chris Ashton, and Jess Cliffe has emerged as the most popular *Counter-Strike* map in the history of the game.



MAPPING OUT THE FUTURE

The decision to choose Valve's SDK was yielding dividends but creating much more pressure on Minh and Cliffe, partly because the help they received meant there would be no one to blame if the game turned out to be an afterthought, but mostly because of the all-encompassing social life both men lost to feed the beast. This was before Cliffe graduated from Virginia Tech. In fact, "When *Counter-Strike* first started, I was a senior in high school. As far as income, I was painting trim on houses with my brothers... just trying to bring some money in so I could do what I wanted to do, which was make this game. I would just scrape by doing whatever I could, just to be able to do it." The toil was ceaseless: "We were putting so much time into this thing, and our personal lives were kind of a wreck because we were so into it."¹⁴

As progress continued apace, it didn't take long for both Minh and Cliffe to finish fiddling with the game engine, staring with bloodshot eyes at the Terrorists and Counter-Terrorist models they'd been spending the better part of six months creating (and adding sinewy shoulders to), and start pleading with level designers to create environments in which their newly developed player characters could run about.

At inception, the duo wasn't too picky about the quality of the environments they received, and Cliffe picks up the story after posting an APB for level creators throughout the world. "Basically, we had this game and we had a test map that we'd made. That was a very hilarious test map because it was basically a large box, and we figured out we needed a little more interesting map than this large box, because we weren't the most talented mappers in the world."¹⁵ Where did they finally seek quality purveyors of the polygon wall, cut-throat alley, and sniper nest? A now-defunct *Half-Life* mapping site called Radium.

"Basically we said, 'Shit, we need some mappers!,' so we went on to Radium for *Half-Life* and said, 'Who are the map makers making really good *Half-Life* maps?', because that's what we need.... And we just mailed them and said, 'Hey, we're making this new mod called *Counter-Strike*. It's realism-based, and we've done some mods before.... You know, like *AQ2* and *Navy SEALs Quake* so you know we're not going to leave you out to dry.'" Dozens of emails winged their way to poorly lit bedrooms, basements, and IT departments across the globe. Did the cavalcade of quality constructions arrive? "We got...maybe three maps submitted. And we released them all."¹⁶ Hardly the most auspicious start.



Early Counterterrorist renders showing the U.S. Seal Team. The British SAS figure (bottom-right) would later become the CS icon.



Before being known as Guerilla Warfare and L337 Krew, these were part of the rag-tag terrorist collective.





UNDER SIEGE

"We did have an interesting and unique mapping content procurement with the maps because it wasn't a cohesive team; it was whoever wanted to submit a map. This was almost like a contest, with our map rotations; 'Whose map would be most popular?'"¹⁷ But in the beginning, the CS team was thankful for any scraps of a stage they could even think about turning into a fully fledged map.¹⁸

"For the first Beta release, back when no one was really playing *Counter-Strike* or knew about it, we had almost no maps to choose from. We released Mansion, Prison, and Siege."¹⁹

Astute (and some might say, scarily knowledgeable) readers might be totaling the initial maps up and realize the duo received only two brand-new maps (and the ridicule received over the next few months means none of these levels appear as they did in the summer of 1999).

Minh and Cliffe studied the siege map for a while, and ICQed each other. "We said, 'This map's cool,' and we just kept bothering the mapmaker to convert it for *Counter-Strike*. Looking back, the map turned out to be pretty fun, but that was a very disastrous way to go about things, saying, 'Can you convert this *Team Fortress Classic* map for *Counter-Strike*?' It doesn't always translate well.... It worked out, but luckily we didn't do that with other people.

As *Counter-Strike* slowly got more popular, people were willing to build maps from scratch. We didn't have to say 'Oh, just convert. Change some entities for us and convert it.'"²⁰ It wasn't so much a hypothesis of "If they build it, they will come." *Counter-Strike* started out with results best described as, "If you plead for them to build it, they still won't come." Fortunately, a scant few months after the July 1999 Beta 1.0 release, the mantra changed to, "If you Beta test it, you'll be flooded with responses." And some of them were really rather good. Ask anyone who's lobbed a grenade through the rope bridge into an upper stone storage room in the haze of an Aztec fracas. >>

Valve designers began making *Counter-Strike* levels when the CS Team was hired in 2000.



A screenshot from Cs_Mansion during the very first CS playtest

"THAT WAS A CHEAP MASSACRE."

July 15, 1999, a scant four months after the name Counter-Strike was etched from ICQ logs to rendered stone, Beta 1.0 was released to the general public. In this case, that meant the general public who had a copy of *Half-Life* and could take time out of their busy *Team Fortress Classic*-playing schedules to deal some terrorist and counterterrorist death. Minh and Cliffe could only manage to rustle up five competitors for their first play-test. And the names of two of the players were "Gooseman" and "Cliffe." The other three protagonists were "Poseidon(Eagle-2)" (latency 49), "ViperX(Eagle1)" (latency 275), and "Magnus" (latency 399).

It was during this test that "ViperX(Eagle1)" offered one of the very first pieces of constructive criticism regarding the Mansion map: "That was a cheap massacre."²¹ Cliffe sums up the first stab at *Counter-Strike* as "rife with all-too-similar-looking models, horrendous pings, and a hideous-yet-fun map named Mansion."²² But the game worked! Just.

The game was up, running, and slightly wobbling. It featured men in dark Kevlar body armor with balaclavas on their heads shooting other men in dark Kevlar body armor with balaclavas on their heads. Both creators knew that distinguishing the bad guys from the good guys was of paramount importance for future releases. As Cliffe puts it, "Those who dared play Beta 1.0 weren't really sure if that guy in the distance was a Counter-Terrorist or a Terrorist. Ah well, they fired anyway. Friendly fire be damned...."²³ There would have to be a friendly fire "off" option in future iterations.

But for now, the co-creators were simply happy checking their download counter on GameSpy; they had no idea the game would become the global phenomenon that it is today. The download ticker at GameSpy "said that we had about 50 downloads, and we were absolutely ecstatic; we were jumping for joy! We could not believe that 50 people wanted to play this realistic counterterrorism-based game, when *Quake* and fantasy were all the rage.... We just didn't think it would be popular because back then no one really wanted to play that realistic of a game in an action setting."²⁴ Thankfully, this was the only time the duo seriously miscalculated the effect their game would have.



Cs_Siege was one of the earliest and most popular Counter-Strike maps.



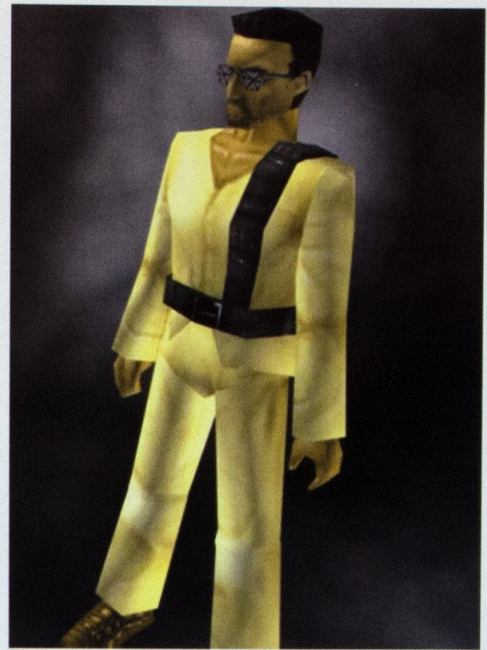
Upon its initial release, bomb defusion gameplay quickly overtook hostage rescue as the objective of choice.

THE RIZZUH ERA

For the next year, Minh and Cliffe worked solidly on improving *Counter-Strike*, building up the fan base, and peaking and troughing through the Beta (in what came to be 25 versions of the game in the next two-and-a-half years). Chaos reigned in the beginning. By late summer 1999, servers would systematically crash, tearing fragsters away from their realistic special forces action with alarming frequency.

By October 1999, *Counter-Strike* junkies had a second place to get their daily fix, as John "Rizzuh" Jensen's Counter-Strike Nation (csnation.counter-strike.net/) came into view (although the website was launched on August 17). It has been an invaluable source of information, tactics, skins, sounds, and pretty much everything else since then. It's still going strong to this day (although your browser needs re-pointing to csnation.net).

But board spamming was to be expected in a gaming experiment of this kind and was perhaps the most interesting part of how the game evolved. According to Cliffe, *Counter-Strike* "just came from these incredibly humble beginnings and roots, this grassroots development where it really was a community.... We said, 'We're thinking about adding this new feature,' or, 'Try out this new feature, and what do you guys think?' We'd post on our message-board and say, 'Does this suck? Is it cool?' They'd post, or we'd take some sort of poll on our website and say, 'Is this good or is this bad?' You tell us."²⁸ >>



By September of 1999, the infamous "Pajama-clad Arab" player-model surfaced.



Not until Beta 6 did more realistic maps like Cs_747 come onto the scene.

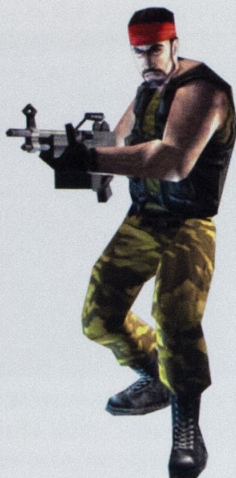
The current *Counter-Strike* model iterations.



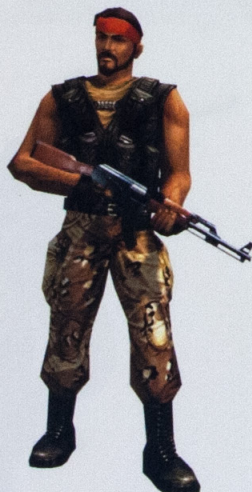
Guerilla: Character Development



Original render from Counter-Strike



Improved graphical upgrade



Counter-Strike: Condition Zero version

HOSTAGE-SKINNING, WILL-O-THE-WISPS, AND THE CROWBAR AXED

With each democratically tweaked Beta build, bits were added, other pieces were taken away, and gradually the Terrorists and Counter-Terrorists came to look less like paramilitary thugs and more like their real-world counterparts. "As far as the player models for the various organizations around the world," Cliffe states, "we had one all-important criterion: Who looks cool?" Certainly not the supposedly new game features that were leaked in September 2000, which included the ability to "skin hostages alive and use them as shields. Sadly, the shield never made it into the game..."²⁹ until *Condition Zero*, which featured a riot shield, although not composed of flayed captives.

Although authenticity was important, it wasn't mandated, with more importance being placed on "Who would I want dress up and be? Who looks really cool? And back then, that's all we had to go on." And despite the earliest polygonal character model sporting the trademark crowbar, real-world weaponry—but not meticulously dull versions of this ordnance—was the order of the day.

"What's a cool weapon? What sounds cool? What's really satisfying to use? And we favored that over authenticity, but there was a balance between both. Those were the two most important things; what would just be satisfying to shoot, and what do these guys use in real life? So that's the balance right there."³⁰ Adding additional weapons in subsequent beta builds and changing character models, environments, and artillery continued for over a year until the lockdown of Version 1 (rather than Beta 7.1, or the 18 previous editions before it) in November 2000.

But the game really went from a home-grown modification with legs to a fully robust and functioning tactical action addition with Beta 5 (although Valve did add indistinct ghostly wisps that emerged from recently deceased players, a strange addition that was difficult to see, even before it was subsequently cut from the next build). "Valve wanted to help us out by polishing the game, because at that time it was still pretty rough. So they contracted Barking Dog Studios to just clean it up code-wise because there was a lot of terrible stuff and then see if they wanted to go ahead and acquire it.... There were just a lot of things code-wise that needed to be cleaned, and they made a couple of new maps...."³¹ Both Cliffe and Minh had that feeling, but they didn't want to chance it. Yet.

Cs_Italy is one of the most played CS maps. The map features opera music and live chickens.





Barking Dog studios contributed new maps such as *Cs_Backalley*.

MINH: 0 PREGNANT YAK: 1

In the meantime, the evolution in *Counter-Strike* and the revolution in online first-person shooters was continuing to build. Controlling the flow of ideas became increasingly more difficult until Cliffe and Minh thought, "To hell with it," and started collaborating in "spamming festivals." According to Cliffe, "Each Beta release of *Counter-Strike* had a release party in IRC chat to accompany it. These parties were called 'SpamFests' and drew thousands of people." Game improvements mingled with excited chatter, challenges, the questioning of competing teams' cojones, and much, much more that was lost forever in cyber-babble. "These spamfests were so insane, that all one could do...was spam...."³²

The joy of these impromptu focus groups galvanized the duo to reach a point where they could become almost satisfied with their creation. Counter-Terrorists had previously counted on American specialists, until the British SAS and the French GIGN stepped in to help ("I almost always take the French GIGN," remarked Minh in one interview. Why? "Because they look so damn cool."³³).

Although satisfied with almost all of the guns in the increasingly polished Betas, Minh's preferred piece of weaponry for covert killing "would have to be the Sig SG-552 Commando. I couldn't hit a pregnant yak with it, but it looks so sweet in my eyes (not literally, in my eyes)."³⁴ Minh is also a big fan of the MP5-Navy. But, as with every untried modification to a multi-million copy-selling action game, there were some tweaks to *Counter-Strike* that went undiagnosed for far too long. "Until Beta 6.5, the Colt M4A1 had a scope and a silencer which couldn't be removed."³⁵

But what about weapons that couldn't even be designed due to time constraints? Minh speaks up: "I was going to add a revolver to *Counter-Strike*, but I never had the time to. I would have added the Colt Anaconda or the Manhurin MR73 (the revolver used by the French GIGN)."³⁶ >>



Terrorists secure the counter-terrorist spawn point in De_Italy.

GUN PILES AND BUNNY HOPPING

Until the November 2000 retail release, the modding community knew, helped, and sometimes hindered these growing pains. "Thinking back," Cliffe ponders, "there were hilarious things in our first couple releases." At the top of the hilarity charts was the problem of gun-running. "There was this gun-running thing; when a round ended, the gun would just stay on the ground from round to round." It didn't take a genius to realize that "people could take these guns and throw them, and then run it back to their spawn point. So when their team respawned, they would have this huge cache of weapons!"³⁸ Was this an incredibly cool glitch or ridiculously unbalanced? Cliffe, unsurprisingly, tends toward the latter.

The gun-running glitch "would just play horribly because it changed the game from who was best at *Counter-Strike* to who was getting the stockpile. Silly things like that constantly occurred, and back then we just thought 'Full speed ahead. When we get time to fix it, we'll fix it.' It's just one of those evolutionary developments where silly things like that get weeded out."

A second, major pain was "bunny hopping," a technique removed from the game entirely because of community reaction. "Bunny hopping, where people would just be hopping around to try to avoid bullets," remarks Cliffe, was beginning to annoy players from early on in development, "and people just told us 'we're sick of that!'"³⁹

Whatever the nuance of the game, the community would have a (sometimes indignant) opinion, and if something bothered a good number of people, "we took note, and took it out. There are bunch of other examples, too, like weapon damage, balance issues..." Minh would mention that "we got this new gun, the 'Para-how-is-it'; what do you think? People would mail us. It was basically a lot of email reading because people would tell us everything. People would bitch us out, people would call us every name you can imagine. We've still got emails saved from people threatening to chop our testicles off.... But you know, we would read it all.... They're not shy.... That's one thing we've learned. But we would read it all, and if there were popular themes in our emails, we would take note of it, and we would make sure it was either fixed or addressed for the next release."⁴⁰

The changes implemented helped *Counter-Strike* eclipse even the mighty *Quake III* in terms of online popularity sessions a mere two months after it went "official."

COUNTING COUNTER-STRIKE'S SUCCESS

Counter-Strike's success was measured on January 25, 2001 (two months after *Counter-Strike* went final and Valve hired Cliffe and Minh, brought them in, and had them keep developing the game, renaming the game *Half-Life: Counter-Strike*, or *CS Retail*) when GameSpy counted "15,611 people playing *Counter-Strike*. In comparison, there are only 2,931 people playing *Quake III* (3,307 people if you include *Team Arena*), 2,774 people playing *Unreal Tournament*, and 1,503 people playing *Tribes*. The next closest *Half-Life* mod, *Team Fortress Classic*, has 3,272 people."⁴¹

Minh was still playing his co-creation, too, even though it was safely in the hands of Valve. "I try to play about 10 hours a week.... My favorite map would have to be *de_dust*.... It's tough picking favorites but when that map comes on, my blood pressure goes up, and that's a good thing for me.... I guess."⁴² Minh wasn't alone in his excitement: The *Counter-Strike* spectacle had begun.

Even today the figures for the number of gamers playing *Counter-Strike* is staggering. Over 150,000 people are playing *Counter-Strike* simultaneously at any given time on any given day, generating over 6 billion player minutes per month.

The *Counter-Strike* franchise accounts for over 3.5 million units sold worldwide.

Eighty-six percent of all PC online action game traffic is generated by *Counter-Strike*.

Counter-Strike generates more internet traffic than the nation of Italy.

What does Cliffe think was the major factor in the success of *Counter-Strike* (aside from the duo, community help, and actually having the gumption to finish the mod)? "The *HL* engine," he says without hesitation. "It is definitely a reason why *Counter-Strike* has become so popular. Just because of the sheer number of units *Half-Life* has sold." In addition, Valve has been there every step of the way.

"They poured so much effort and money and development time into it since the acquisition, it's very difficult to say where *Counter-Strike* would go without Valve Software. *Counter-Strike* was our baby; we wanted to do the best thing for our game, and that was the best thing for the game. People talk about, 'Oh, do you think you sold out?'... You know, it takes manpower and it takes a lot of money to invest into games to make them good. You guys are going to hear that about *Half-Life 2*: All the money that was made from *Half-Life* has all been poured into *Half-Life 2*. There's a lot of people that work here at Valve, and a lot of very talented people who could be out there making a lot of money, but they're here making games, and it takes a lot of money and a lot of resources to make and maintain a good game. *Counter-Strike* could have been left out there a couple of releases ago, but Valve has constantly added new content, new maps, new models... just to maintain the game."⁴³

With Cliffe and Minh currently at Valve full-time beaver away on the Source engine-powered *Counter-Strike 2*, there's a real sense of achievement and pride that the co-creators have about their creation.

The fact that the game is currently the official game of the Cyberathlete Professional League (or CPL) so many years after the original release is a testament to *Counter-Strike's* bullet-proof quality. >>





PART 2: RE-CONDITIONED COUNTER-STRIKE—CONDITION ZERO

THE LONG AND WINDING ROAD

Updating *Counter-Strike* and adding a single-player experience sounds so simple in hindsight, but a tumultuous development period awaited the next installment in the *Counter-Strike* saga: *Condition Zero*. Doug Lombardi picks up the story. "In the spring of 2001, *Counter-Strike* was a commercial and online success. And the guys from Rogue Entertainment had just finished *American McGee's Alice*. They flew out to Seattle to talk to Microsoft and they stopped by and said, 'Hey, we're looking for a project. Do you guys know anything you'd want us to build or anything that we can do together?' Ironically, they turned down *Opposing Force* to do *Quake* for the N64. Which, if you go back and look at the sales data, was a very wrong decision for them. So they came back and said, 'Hey, we made the wrong decision last time.' *Opposing Force* sold over a million copies at a premium price and *N64 Quake* has gone into the 'where are they now' file...."⁴⁴

Valve was already toying around with the idea of bringing a single-player aspect to its stable of titles. Doug continues, "We had talked to some people earlier about trying to do something single-player with *TF*. It just never got off the ground. So, now *CS* was quickly becoming more in vogue than *TF*, and we thought, well, it'd be interesting to try and do a single-player experiment in that universe. That was the genesis of how *CZ* came to be. Those were guys that we thought were going to be a good team to work with, and Gabe and myself and a couple of other people always wanted to try taking a multiplayer title and seeing how a single-player game would come out of that." Everything continued until the Rogue guys decided to, well, go rogue. "They basically disbanded. Some of them went to Sony, and I think some of them went to Ritual."⁴⁵

Valve handed the project over to Gearbox Studios. Lombardi's explanation continues, "Gearbox worked on it for about a year. And they actually went down a path that was pretty similar to what Turtle Rock finished." Turtle Rock was the final development house responsible for the game's completion. Back at Gearbox, though, "it just wasn't coming together, and they were working on *007 Nightfire* and trying to get their own project off the ground, which is now known [a WWII FPS called *Brothers in Arms*], and a lot of other things [*Halo* for the PC being the key "thing"], and basically we all just came to this mutual decision that it was probably best to move the project on."⁴⁶ Development with Gearbox grinds to a stop, and Valve decides on the game's future. >>



Meet the *Condition Zero* Terrorists: From left to right, Midwest Militia, Elite Crew, and Urban Militia.

TURTLE ROCK'S SOLID BOTS

"At that time, we thought that the bots, the single-player elements, and the multi-player aspects weren't really working as a whole, and the bot work was difficult to program; doing bot AI that's compelling and interesting is hard. So we decided to fall back to something that would look more like a narrative, single-player game. So, Ritual steps in and does what eventually will become *Deleted Scenes*. Meanwhile, we had met up with Michael Booth, who had just left Westwood after shipping *Nox*, and he wanted to do some AI experimental work and something longer term with us. So we basically set him out on an experiment to play with bot intelligence and we chose *Counter-Strike*." Michael Booth picks up the story in a HomeLAN interview:

"Some friends introduced me to *Counter-Strike*, and I became completely addicted to it. When I decided to leave EA Pacific and start my own studio [Turtle Rock], Valve was the first place I contacted. I was given the freedom to do some innovative work that added a new dimension to a game I really enjoyed—*Counter-Strike*." Booth's main purpose for his bot creation was to allow "players who are new to *Counter-Strike* or who don't enjoy the ultra-competitive nature of the online community the ability to play on their own terms. During testing, I saw people who have never played *Counter-Strike* have a lot of genuine fun with the bots."⁴⁷

Booth spent most of his time with "flexible and robust navigation algorithms," as "the large number of maps that exist for *Counter-Strike* were not created with bots in mind. Many things are nonstandard among different maps, such as ladder placement, doorway widths, obstacle geometry, and so on."⁴⁸ He added a learning ability to his bots, so that when a Booth bot enters a map it doesn't know, it spends a few minutes "learning" the layout.

The bots also exhibited a rather scary sense of tactical knowledge, retreating in firefights to hide and ensnare, circling around you when others are engaged in fighting, and leaping down to lower levels to ambush you from behind. Valve checked out Booth's bots and were extremely impressed. "They turned out to be really, really cool," enthuses Doug, and Cliffe echoes this sentiment, "The bot was a pretty important turning point."⁴⁹



An early press-release screen showing action from *Counter-Strike: Xbox*





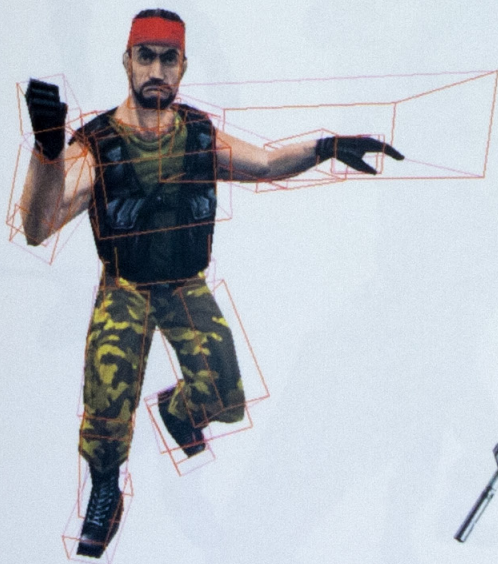
Condition Zero gave many popular CS maps a complete overhaul, such as this upgraded version of *De_Aztec*.

ZERO TOLERANCE

Meanwhile, Ritual was finishing up its foray into *Counter-Strike*. Doug chooses his words carefully, remarking that the effort "was pretty good, but, we sent it out for a couple of reviews and we got hit a little hard on it. Jess finishes school and comes to Washington and we all sit down and basically say, OK, let's ship some of the Ritual single-player scenes, the *Deleted Scenes*." To bolster the game further, Valve placed "a core team of people around Michael Booth and the bot, produced by Cliffe who was overseeing the project and said 'Let's leverage that content in both the Xbox version and the PC version.'" The result was *Condition Zero*,⁵⁰ and *Counter-Strike* for the Xbox.

After the less-than-stellar press reviews for CZ, Lombardi is philosophical about the multideveloper antics and angst that went into the game's production. "I think the game isn't sexy in the press because it doesn't have the new engine and all this other stuff. From a gameplay point of view, it's probably one of the more important titles in the first-person shooter genre that's been released in a while, because it is somewhat vicious in terms of doing something different."

Doug certainly knows what this game isn't, as Valve made the conscious decision to steer away from "'Here's your cutscene,' 'Here's your linear gameplay,' 'Here's the recreation of storming the beach at Normandy,' stuff I've seen a hundred times in the past three or four years now." It also rekindled gamers' violent love affair with *Counter-Strike*, especially as Valve continues to win gamers over with CZ's numerous updates, as Cliffe explains: "We're back to our usual strategy of releasing the game and having the luxury of our community input processes where we keep developing and making it better."⁵¹ >>



A terrorist showing the specific body targets available to aim at



A render of Moses, one of the proposed bosses in *Condition Zero: Deleted Scenes*



Meet the Counterterrorists: From left to right, U.S. Seal Team 6 (DEVGRU) (five poses), German GSG-9 (two poses), United Kingdom Special Air Service (SAS) (three poses), French GIGN (two poses), Russian Spetsnaz (two poses), and Japanese Kidotai (two poses).

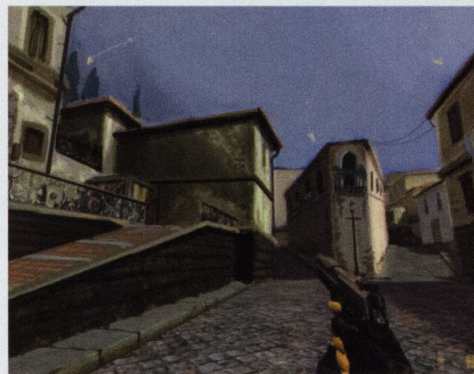


PART 3: COUNTER-STRIKE: SPECIAL SOURCE

TOTALLY GUTTED

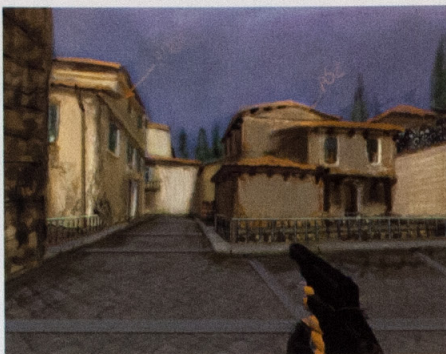
Valve's future: *Counter-Strike Source*. After a decision during the creation of *Half-Life 2* to nix the idea of an all-new multiplayer series of maps like the original offered, Valve set about recreating some of the most beloved environments from the *Counter-Strike* days, in order to easily grab and gravitate current CS players, and show mod-makers what the new engine could do. Jess Cliffe headed up the operation: "It's bringing our players forward with our technology, in keeping with our whole strategy of incremental updates. To be honest with you, we're not even sure as to what it's going to include, but we're going to keep updating it with what we think is the best way to go." So what does this re-tooling encompass? First up is importing the map code. And then? "Totally gutting it."

This leaves the general box, a path with the general layout of the level shown. From this skeleton, level designers renew and revamp every single part of it, a plan to gut the original textures and redoing it to be up to today's standards. And it's kind of funny because I read forum posts where people are really wanting it, but they have these expectations."



Cliffe thinks these expectations are a little futuristic. "Yeah, you can't just 'push a button' on it. Updating all the art has taken months and months and we put a lot of work into it and we're still going to put a lot of work into it." Rest assured, modding over maps is possible, a great way to learn the new *Source* engine's strengths, but modders won't be converting their *HL1* mods in a day. For *Counter-Strike Source*, though, the basic tenets of the gameplay remain unchanged, so expect the same weapons to begin with, just in unbelievably beautiful environments. >>

Valve artists take a screenshot of *Cs_Italy* and then mock up the new, upgraded environment in Photoshop.



BARRELS OF FUN

"Everything has taken advantage of the new engine's abilities. For instance, there is the sound ambience. So I had the whole soundscape system per map with different areas blocked off that will change dynamically. There's a whole script for what's going to play when, sources for those, triggers for those, randomness so it doesn't sound canned, so it sounds totally dynamic. Honestly, we probably have more megs of ambient sounds in *Counter-Strike Source* than we have all sounds put together in regular *Counter-Strike*." This is just a small example of how far *Source* ramps up the play experience, giving the power over to the mod-makers. But what about the main changes?

Imagine splashing your way through the algae-ridden waters of Aztec. "The splashes are more window dressing, but physics make for more dynamic gameplay. Someone is hiding behind the barrel now; it's going to get shot out now and you can no longer rely on that for cover." Everything's about to change. Take the crates on the ever-popular Dust for example: "If our level designer wants to have them dynamic, which he will, all of that will be reacting to the environment and the player. Throw a grenade at somebody hiding, and that body is going to fly, it's going to hit that barrel or crate, knock it over...everything will be just dynamic," remarks Cliffe.

"You've got to be more on your toes now, in general," Doug continues, "and the reason why it is so cool is it's really tense. You can feel sort of like, 'I've only got one time to get out!', you know what I mean? 'And I'm going to make it!' And as you see the people getting killed, it's like 'I'm one of three guys...oops, one of two guys still on the...shit! Where is he?' And all of a sudden the barrel flies out and 'whomp!' It adds to the 'crap-your-pants' factor."



Mockups of the new Cs_Italy and De_Dust



In-game screenshot from De_Dust

LARGE AND IN CHARGE

"The sheer size of a map is something like 10 times larger," Cliffe states. "The 3D sky box technology will allow you to have these expansive levels. If you look at all our CS levels, there are these little arenas, and you feel like you're in this little box, but now with the 3D sky box, we can just make this huge, huge area where it looks like it just goes on for miles and it literally does. So that's a great thing. The physics are a big part of making it totally dynamic. So, anything that you want to do to the world, that would represent what would happen in real life, if possible."

What about a specific example? "Shooting a stack of pipes, having them fall, having steam come out, have a fire occur because you shot an explosive pipe.... Anything you can imagine in a mod, you're pretty much going to build it." As for the community spirit when faced with such a gigantic canvas? Doug thinks it will lead to previously impossible creations: "Either us and/or the community will figure out new gameplay types that just weren't possible because of the size of the maps and things being sort of static in the world. Right now I'd say just about every original *Counter-Strike* map is good for four-on-four and maybe eight-on-eight, and maybe in some cases a 10-on-10. That number is going to clearly go up higher."

Cliffe continues: "Maximum players? It's arbitrary. We've talked about 40 or 50, but it doesn't really matter if we put a limit on it. It's really going to be dictated by the specs of your server. If you've got a powerful server, you're going to be able to serve 40 people. That's going to scale directly to that." But there's a bigger question here, and Doug nails it: "Is the map really fun to play with that many people? That's something that we, honestly, haven't spent a lot of time figuring out. I don't think the community's had a chance yet, but surely, over time, people are going to crack that."

Cliffe adds, "I mean, our maps—Dust, Aztec—they were designed for 10-on-10. But you've got 30-player servers out there—a total pandemonium—and we're—"

"16-on-16 in Italy!" Doug interjects, "and the game is like, turn, bang! Aarggh! (laughter). Did I see you around the last corner?"

"We'll continue to scale our maps," Cliffe concludes. "If you want to have huge battles, and that's what you'll want to play, then we're going to give you some bigger maps." >>



A mockup of the market place in De_Italy prior to the detailed art reworking and an actual in-game screen shot of the completed map (left)



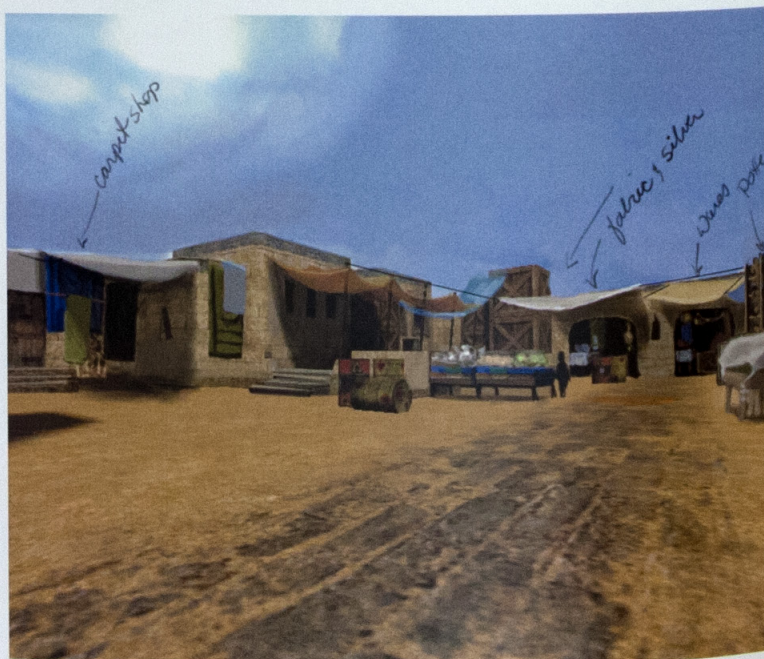
Gamers must wait a little longer for created levels this time around. "That's why Valve is 60 people instead of 20, like back in *Half-Life 1*," Doug agrees. "That's part of the catch with all this great stuff that you get. Physics adds time to QA. You have physics in there, more shit can happen, more time to test it. You're going to do higher polygon characters; guess what?"

"It'll take longer to build them," Cliffe states.

Back to Doug: "And it'll take longer to animate them."

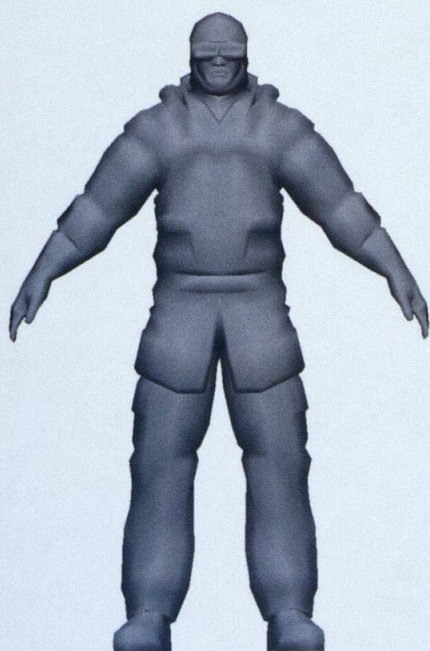
"It's so funny looking back, because the previous game looked so simple compared to what you're building currently. You think, 'Wow!'" says Cliffe.

"Exactly," Doug nods, "we can do that in a week now!"⁵² But week by week, as modders begin to understand the new intricacies of *Source* and the new power it yields, they can begin to create environments, worlds, and stories Valve hasn't even thought of. Building the future organically. It's a return to the Source. ■





Model sheets for the new Counter-Strike: Source CT characters





The Mod of War:
Day of Defeat

08

“No PC FPS game had really pulled off the feel
and immersion that we wanted in a WWII game.

Day of Defeat would fill that void for us, and lots of fans.”

—Jakob Jungels



A British soldier rests his Bren Gun on a sandbag for better accuracy in the map *Flash*

►► FRONTLINE ASSEMBLY

"The day I laid my eyes on *Quake*, I decided that I wanted to work on video games,"¹ John Morello II (a key player and player animator in *Day of Defeat*) says, thinking back to the impulse to design that he and his teammates shared. However, the *Day of Defeat* team began their advancement to the World War II first-person shooter throne after a particularly inauspicious (but recognizable) start. "It started a long time ago with a bunch of guys who were just interested in WWII and they started doing their thing, but really weren't doing a whole lot of work—like most mod teams,"² John remarks with a smile. This haphazard approach was reined in after a particularly memorable night of movie-watching sometime in 1998. "We saw *Saving Private Ryan* and wanted to make a game out of it. That's how it came about."³ At least, most of the team saw it that way.

When Jakob Jungels (artist) was asked by the PCShooter website if the movie had influenced him, he replied, "Not necessarily. I think we try to stick more to proven historical references rather than a movie that was made for entertainment. Although the movie does contain a wealth of information, it's hard to tell what to believe."⁴ Jakob cites another reason: "No PC FPS game had really pulled off the feel and immersion that we wanted in a WWII game. *Day of Defeat* would fill that void for us and for a lot of fans."⁵

Overall, it seems Hollywood's late-20th century infatuation with mid-20th century warfare did indirectly help shape *Day of Defeat*: "Hollywood started releasing the realistic WWII movies, and then everybody got ideas to do games."⁶ Kelly Thornton (sound engineer) is correct; you can't throw a fire-sale copy of WWII Online into a games store without it hitting two versions of *Medal of Honor*, *Battlefield 1942*, and *Call of Duty*.

The team didn't immediately begin, though. "We had started from scratch and all had the initial fear of 'I don't have anything, where on earth do I begin?'" It floundered for about a year,⁷ Thornton remembers, thinking back to the original squad who began the mod. What the mod needed were some fresh recruits. "It had been a year, and they weren't even into a good heavy pre-Beta 1 testing. Then I came on, followed by Jake a short while after, and then John shortly after him...."⁸

And while Spielberg's epic war saga was the impetus for the game's creation, there were other, just-as-important factors for choosing the WWII theater of war, such as being interested in the subject matter and the fact that the war has such a worldwide significance. "I got turned on to the hobby by just collecting stuff with my brother, so that's where it started for me. I've just always been interested in it. It's the whole 'world struggle'—type thing. As far as a game, almost everybody in the world was involved in World War II, unlike some other games where it's maybe a certain location. So people in Canada for example, would be saying 'why would we want to play this?' But WWII? Almost every country served in this war."⁹

BEATING DOWN THE DOORS FOR BETA 1

The *DoD* team eventually pushed out Beta 1 in January 2001. According to John though, “if it was up to us seven, we wouldn’t have put the first beta out, because we didn’t think everything was perfect.”¹¹ Usually, when the first version is left outside for the first time for the mod community to savage, the game needs a few improvements. But the fans were clamoring for the game. “There was a ton of pressure, just from forums. They said ‘just release something!’ So after about a year of that, we went, ‘OK, we’ll just put it out there. So we released it.”¹² This was after a grueling schedule on top of “proper” work. John’s *DoD* schedule “in the beginning was 20–40 hours a week easily.”¹³

The pre-Beta 1 period was a long, hard slog, Kelly reminds us: “I think roughly a year prior to Beta 1 we were always working, I mean everybody; you’d go home after school or after work. You’d sit down, boot up ICQ, and you’d have everybody listed on there. It was weird. It almost is like you have no social life, like you look forward to talking to...”¹⁴

“It becomes your social life,” John interjects, “Yeah. For a while. And then you ship. Then it’s like [sighs] ahhhh!”¹⁵

Kelly felt the weight subside too, but with a slight twinge of poignancy: “There is a letdown after you ship though, because you’re feeling a little lost and your world’s gone.”¹⁶ But on release day it’s a little more frantic.

“Just seeing gobs and gobs of downloads...parted channels...we had to cap ‘em.” John laughs, “We had thousands of people in the chat room where we first released it.”¹⁷

Jakob responds, “I think it hit the limit for IRC.”¹⁸

Back to John: “Yeah. On GamesNet. I mean, you couldn’t read a thing. There were 2,000 people waiting for the downloads to come out.”¹⁹ That expected backlash never came.

“It did fine though, actually,” Kelly admits with a grin.

“Yeah,” concludes Jakob, “Beta 1 was kind of testing the waters. I think Beta 2 was more of a finished product.”²⁰

The team read the feedback voraciously, and knew the initial beta’s limitations. John takes up the story: “In the rush of releasing the first beta we just put it out, and it was a lot more ‘arcade-like’ than we wanted. So with the communities that we had at the time—which were pretty small—everybody kind of knew each other, and everything was rooted to realism.”²¹

The team listened to their fans and tried to add a realistic dimension to their next beta. Not that the first offering wasn’t outlandishly inaccurate, though: “There were no Nazi UFOs or anything,” Jakob notes, “nobody from the community had any crazy ideas because they’re all realism buffs. All of it was real fine-tuning stuff. No jet-packs zipping around hedges or anything like that.”

Kelly adds, “We added weapon recoil to help make it a bit more difficult and have that...more...”

“A better feel.”²² John finishes. >>



German and American infantry, from Alpha to retail release



Gun-brandishing for photography and rendering is part of the authenticity in *Day of Defeat*.

Back the Attack!



DAY of DEFEAT

Half-Life Modification

Day of Defeat features stylized artwork in keeping with the time period

"I NEVER WORRY ABOUT ACTION, ONLY INACTION."

This trek toward realism was the main change between Betas 1 and 2, and it met with an unusual but welcome response: "It wasn't so much 'holy crap I don't like this now,' but it was 'this is a big change and I like it, but I'm not used to it yet.'"²³ Kelly recalls. The team was more focused on the authenticity, too: "This is definitely the way we wanted to go."

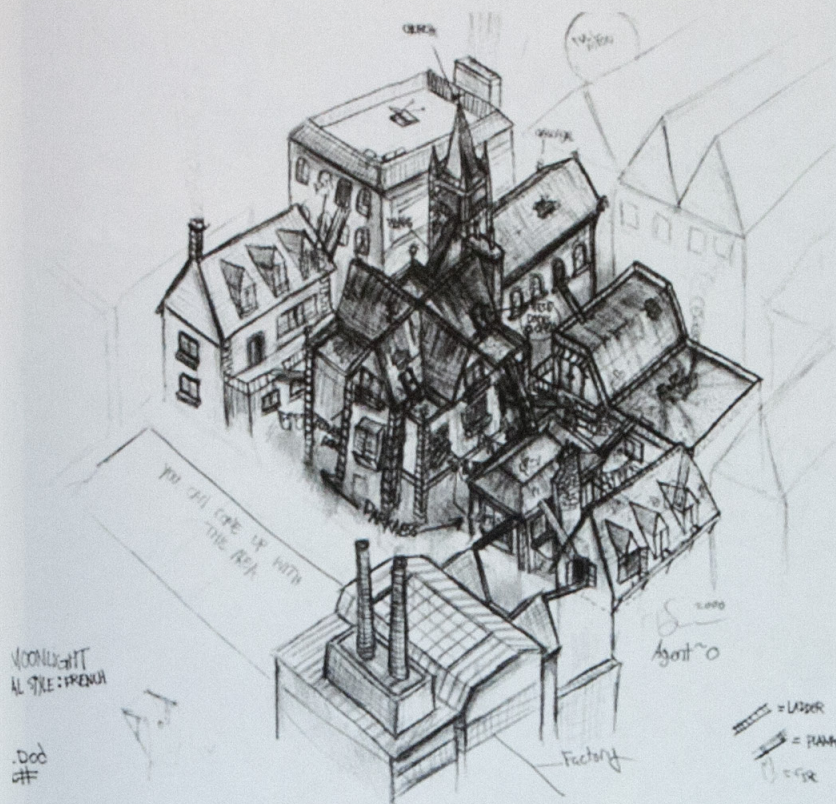
During Beta 2's completion phase, other tweaks began. As Jakob remembers it, "we started to add objectives in maps, where you actually had to try to do something rather than just deathmatch."²⁴

The process continued until Valve's November 2001 Mod Expo, where this close-knit team met up in person—for the first time. With most of the great mods, the creators don't ever see or speak to each other unless a computer is involved. The experience was a little unnerving, according to John: "It was weird. To me, it was like you knew everybody. As soon as you saw someone, you just knew. Yeah that fits, that's Jakob."²⁵

Kelly isn't worried about interpersonal interaction in terms of mod makers. "A lot of people ask me 'How do you know what your team is really like?' And I say 'Well, there comes a point when you talk enough with somebody online.' You talk to somebody for a year, and I mean real-time chat. They can't keep up a façade for a year and a half, right? Eventually through our arguments and deciding on what to do, a real personality will come out for the most part in chat. So we knew each other...almost." Kelly continues, "Part of that is that there's a year at least of just floundering and doing nothing. Members were coming in and out of the team at that time and eventually, after a year to a year-and-a-half's worth of just...oh, you know..." Waiting for the right team? "Right. Then it's 'Here comes Jakob; he's a good guy,' and he sticks with it. Well, now we're waiting for a good animation guy who doesn't goof off.... 'Oh, and here comes John; he's stable.' Eventually everybody was going. We wanted the team to be mature, normal people."²⁶

This fact is echoed in an early HomeLAN interview with team member Ben Jones, who revealed that "we've always had a problem with player models. Getting them in correctly has been a true challenge for us, and we can never seem to find a player modeler with the dedication/resolve that we need."²⁷

This was the inevitable "weeding" phase of the mod's creation, where the team transformed into those happy few ready to continuously update the releases. Jakob calculates, "I think at one point there were like 20 people on the team. You can't manage that online. It wasn't until the point that we got down to about eight core people that the game became manageable and it got started." >>



A map concept for Day of Defeat



American infantry troops:
a Master Sergeant and Sniper



The US Airborne and German Fallschirmjäger were first seen in Beta 3.

"Yeah," John agrees, "When there were a lot more people, it seemed like it was actually harder to get things done. There's no way to communicate. You can communicate in real-time in IRC, but still that's a jumbled mess flying by."²⁸

While the team was pruned, they approached Valve for advice and help. "They were doing Linux builds for us," John states, "I know the coders were talking because Valve hosts a whole programming email list that the coders can use to talk and get feedback. And then they just put out the original SDK,"²⁹ which solved most of the major headaches.

"They also made a map for us in Beta 2," Jakob points out. This map was *Avalanche* by likka Keranan. All things considered, John considers the version a success. "Beta 2.0 was a much better representation of what we envisioned *DoD* to be. We were pleased to see how well it was received."³⁰

LOOSE LIPS SYNCH SCRIPTS

If this mod was going to continue in its upward trajectory toward perfection, it needed complete authenticity and an era-specific collection of armaments. Naturally, eight army buffs means eight different thoughts on what to include, with the main history buff being the enigmatic Thunder_Weenie. John reckons this attention to detail is an advantage, "I think that's why the game is kind of balanced—because we all have our personal style that we want to place in play, so we all fight tooth and nail to make the game that specific way. It all balances out in the end, as everyone is pushing equally. The sounds, the models, and everything drew me into the experience."³¹

Early on, it was the models in particular that Jakob spent considerable time with: "If you want to get it right, modeling can be a very time consuming endeavor. The complete process of modeling, animating, and texturing will usually take upward of 20 hours of solid work, per model."³²

The audio elements were also of particular importance. "Some come from sound libraries," Kelly tells us. "I mean, come on... a tank! Where am I going to find a tank to record, right? Where would Valve find a tank? You don't. Anywhere in the developer industry you can't find some of the bigger sounds, but voice commands, reloading weapons, little things like that you can record yourself."³³

The team wasn't quite ready to book some recording studio time with Michael Madsen just yet, though. Kelly used resources slightly closer to home. "For the voice commands, I was down in my basement with my brother right under where my mom and dad were asleep." The instructions were as follows: "OK, yell, but not quite so much to wake up Dad, OK?"³⁴

There were other sound-effect maestros too, John adds: "That was the Beta 1; Matt Thorton was in his basement with a sheet over his head for a crude noise dampening talking into a mike."³⁵ Over in Germany, the Axis forces were receiving the same type of treatment, but with fewer bed sheets and more shouting. "Michael Goemmel did the German commands. He would just drink a beer and smoke a pack of cigarettes. I said 'Michael, try to get that movie-like German, gravely thing.' He goes 'Oh, I know what you're talking about.' He would do it. He would scream his head off. It came out really well."³⁶

Shrieking Germans and basement dwelling are fine for the sound effects, but weapon development needed complete authenticity. The team went for realism in a big way; they've all fired the armaments in the game. Kelly it seems, is a bit of a collector. "That's how Jakob modeled all the guns so well. He's got an eye for detail. I would take photos of them, and he would just make an exact replica. Now with increasing technology, he's going to be able to make them even better. And then we all moved to Valve and I brought a few with me. We've gone out to the range a few times. It really helps to develop the game, to go and shoot, listen, and hear. Especially for John animating, to actually hold the weapon, seeing it down the barrel."³⁷

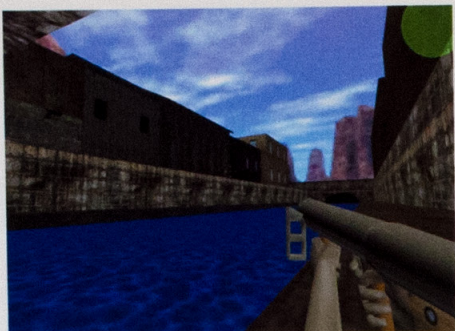
DAZE OF DEFEAT

Early in development, when Kelly joined up, most of the focus was on improving this detail. "The first things that were done were tweaking like weapon characteristics. The first test map I went on to was Frenzy. We had a real early Thompson machine gun model, and the only thing that was different was weapons damage."³⁸ Between the betas, Kelly and the team became a tweaking machine. "There was a really rudimentary recoil at the time, and we ended up not being able to predict client-side, so that didn't make it into Beta 1. Damage, the speed you run, stamina, weapons, guns, things like that—all that needed fixing. All the art was already in."³⁹ This "art" wasn't just re-jigging existing models, either. "Everything was built from scratch. It would be a waste of time to skin a Barney model."⁴⁰

Although the team was slowly heading toward a finished beta, Kelly reveals it wasn't until Jakob joined the squad that the pace of the work quickened. "Before that time, I remember I saw a mistake in a model, a pretty huge one, and I would ask, 'Could you maybe redo this?' It wasn't even redo, it was 'Just take this part off' and it was three or four weeks before it got done, whereas with Jakob it would be done that night; 'Here, is this OK?'"⁴¹ >>



German troop renders inspired by authentic wartime photos



A pre-alpha test of the bazooka, which was later scrapped

Just like the gameplay they were shaping, "Teamwork is very important to us, and is the groundwork for almost any multiplayer game,"⁴² Jakob remarked in a 2001 interview.

These weren't veterans of previous mods, either, as John points out: "Another leading factor was a lot of us were learning how to do things as we went along. It was my first project, so I learned how to animate as I did this."

Kelly responds, "Yeah, John learned how to animate in *HL* in about two weeks. He hadn't animated at all in *HL* until about two or three weeks before our release date for Beta 1 was supposed to happen."⁴³ These were raw recruits with a grandiose mission on their minds, and little things like learning the SDK wouldn't stop them. It did, however, impact their lives.

"It impeded on sleep." Kelly recalls. "I would work during the day, go to graduate school at night, get home at 10 and from 10 to 3 or 4 a.m., I'd work on *Day of Defeat*."

Jakob agrees, "I was going to school and working a midnight shift in the computer lab, and then coming back and tweaking *Day of Defeat*."

John: "I was working two jobs, going to school full-time, and trying to manage a girlfriend! I'm still with her because she put up with me when I was 'Alright, I gotta go work!'"

Kelly is quick to point out though, "It was so fun to do it, it wasn't really a job."⁴⁴

And when Valve came calling, the *Day of Defeat* team had the opportunity to turn a hobby into a way of life. "We hadn't shipped Beta 2 before they called us," John recollects. It was June 2002.

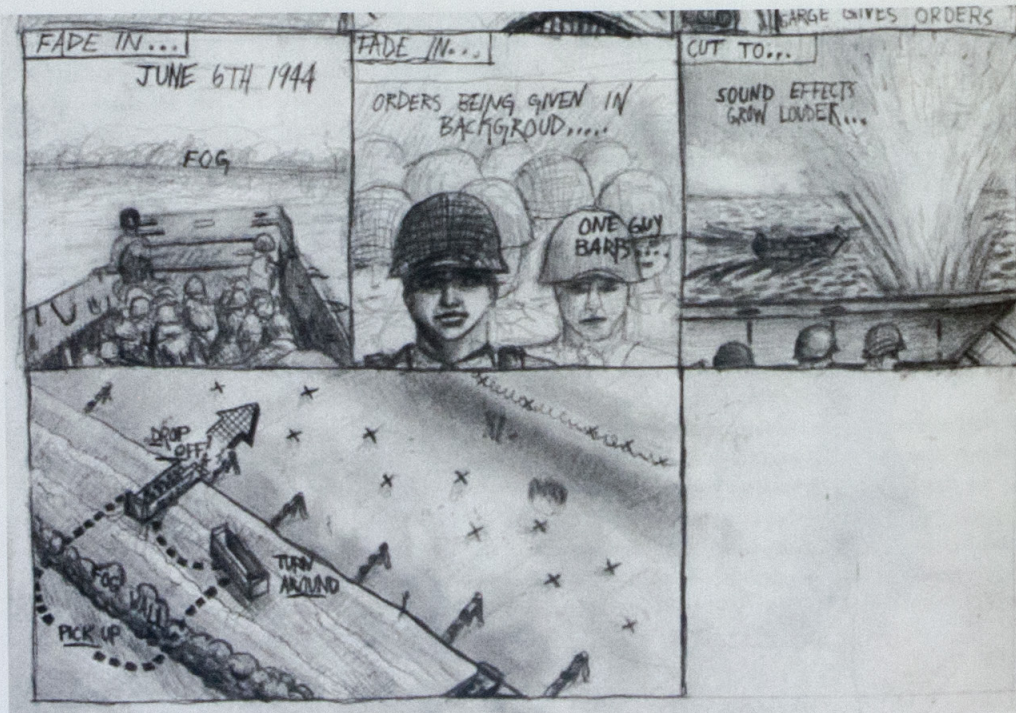
Kelly had a choice to make: "I had a part-time job at the hockey shop sharpening some hockey skates, and I got a phone call from a guy in Alabama, one of our coders, Brandon Russell. He said, 'Well, you aren't going to believe it, Kelly, we just got a call from Valve! Yeah, they want us to come up there!' And I said, 'Well, I'm not working here anymore!'"⁴⁵ Everyone received the opportunity, and only those with prior commitments (university, jobs that didn't involve sharpening skates, wives, or kids) turned Valve down.

Travis Smith says: "The decision to work for Valve on *DoD* was an easy one. I was a senior in high school at the time and had been working on the mod for 2-3 years already, then overnight my hobby was my job. You really can't beat that."

VALVE FOR VICTORY

Brought into the Cabal, Valve spent the following months completing the game to its satisfaction. As John explained in a HomeLAN interview, "Development of all aspects of *Day of Defeat* will remain the sole responsibility of the *DoD* team. However, our partnership with Valve will provide us with more resources and allow us to be a much stronger team. For example, the simple fact that many of the guys are able to do this full-time now and work in the same building has greatly improved our productivity."⁴⁶

The Valve offices and atmosphere were completely different: "Every day seems so surreal. I walk through the reception area and there's Gordon and the crowbar and a headcrab. Then to keep walking and further down the hall see a poster for a product I've dedicated countless hours to is truly amazing."⁴⁷



A storyboard cutscene concept featured in the Beta 2 preview movie



The team then went on to craft Beta 3 while entrenched in Valve's Seattle offices, offering gamers "another dimension to the gameplay; new, single elimination style"⁴⁸, as well as a long-awaited Paratrooper class soldier, and specific weapons for this daredevil. There were also some natty new cutscenes and some old favorite mission styles. "I enjoy the timed missions when the clock is running down," Matt Boone reminisces, "and you have to break through and complete an objective—that's when it got really tense around the office, people would be shouting into the halls; 'I need help over here!' and 'They're capping the truck! Go left! Go left!' It's really fun when everyone is into it like that."⁴⁹

By this time, there was a whirlwind of enthusiasm as more and more first-person shooter fanatics and WWII enthusiasts flocked to the game. "It's constantly amazing to see our player numbers neck-in-neck with similar games created on full commercial budgets,"⁵⁰ John remarked at the time.

Matt agrees: "It's a great affirmation that people will play a game because it's fun, even with games coming out that show off more advanced graphics."⁵¹

Then came the commercial retail version of *Day of Defeat*: "I think everyone who creates a map or mod has visions of taking it all the way. Should that opportunity present itself, I think the team is definitely up for the challenge,"⁵² John told HomeLAN in July 2002. Less than a year later, the challenge was complete. >>

Anzio combines fast-paced action with a need for team coordination—several people are required to capture this bridge.

The retail release of *DoD* brought the first use of personal field maps to track friendly troop movement.



The announcement of the retail version of *Day of Defeat* going gold was heard on April 4, 2003. By May 1, the beach-head had been established, and *Day of Defeat V1.0* was released with the jubilant message "So start cleaning your weapons and prepare for attack! LOS! LOS! LOS!"⁵³ And the announcement didn't mean line-of-sight.⁵⁴

The retail version pinned down the finest maps created ("We ended up with six remakes and nine brand-new maps that we felt best represented the new and refined gameplay,"⁵⁵ John told HomeLAN just before the release), and some new and explosive ways to maneuver around the maps ("rocket-propelled grenade launchers also play a role as they can be used to open new pathways through a level."⁵⁶).

Choosing what to leave out was a tough decision, according to Lead Designer Tim Holt: "We basically felt it would be better to concentrate on a core set of levels. We really wanted them to work and feel similar. We also did drop some maps we felt just didn't quite work as far as gameplay goes."⁵⁷

MOD IS IN THE DETAILS

However, the team knew what they wanted to put in: "Eye candy. Details such as muzzle flashes, particle systems for weather effects, explosion shrapnel, smoke, et cetera."⁵⁸ But the biggest news wasn't the maps, destructible environments, or the new particle effects; there was a spectacular graphics overhaul, and the British finally arrived: "Ninety-five percent of all the art assets have been either completely redone from scratch or been significantly improved. That includes models, textures, animations, sounds, and levels. The new features include the British as an Allied force that comes with its own arsenal."⁵⁹ Even the team members couldn't believe their idea was neatly boxed and sitting in game stores across the country. Matt Boone sums it up succinctly: "The retail version was a surprise, actually—we never had high hopes of making it to retail."⁶⁰

Almost a year later, on May 19, 2004, V1.2 arrived, and the number of *DoD* players continued to grow and grow, a fact not lost on John. "When the person preparing your taxes knows just as much about what you have created as you do, the world seems really small."⁶¹ While others continuously update *Day of Defeat*, most of the original team "still play *DoD*, but we're working in separate areas now."⁶² John and the gang also have taken time out for other mods: "*Natural Selection*'s pretty cool. And then there was that *International Online Soccer* game. Work kinda stopped for a couple days."⁶³



Bren Gunner along with a Staff Sergeant from the US Airborne



An early splash screen concept sketch

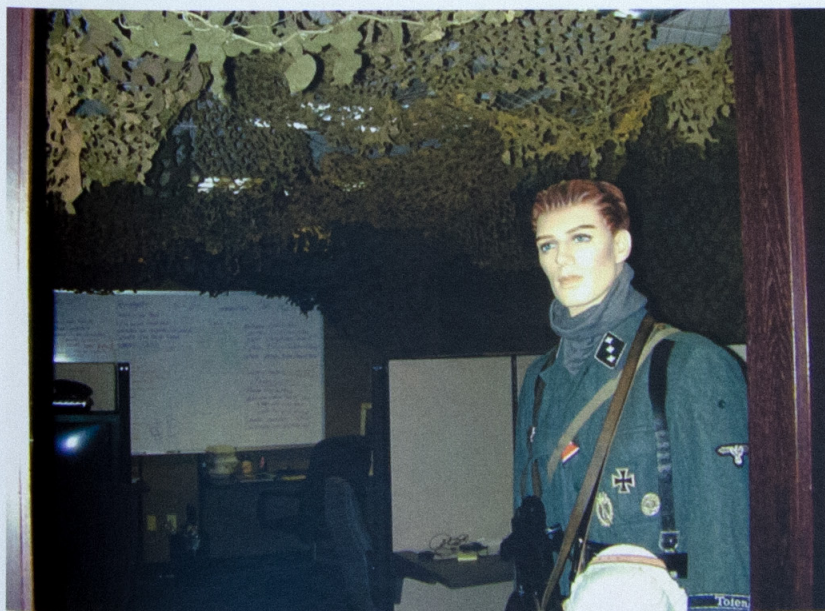


Hand signals play an important part in effective communication during firefights.

As the team disperses, Brandon Russell (programmer) and John offer some advice for *Half-Life 2* modders set to launch a blitzkrieg on the world of semi-professional game developers: "If you give it your all, and surround yourself with a great team just as eager as you, great things are bound to happen. Also, it's a good excuse to stay up late, run up your phone bill talking to your teammates, eat lots and lots of chips and ice cream, and watch great war movies!"⁶⁴

John is slightly less pragmatic (and gluttonous): "Focus. Keep the team small. First off, it's the internet—don't be afraid to hurt someone's feelings because... it's not like you have sit in front of them and go 'You're fired, you're not doing your job.' If someone's not pulling their weight, they're out."

Jakob adds, "There's a lot of guys out there that'll come up with an idea and then they'll ask, 'Can anyone help me model... and do everything?' If you're going to come up with an idea, you have to at least put your share of work into the project. There's nobody on our team that didn't put in their fair share."⁶⁵ ■



The Valve offices house the *DoD* center of operations.



Xenome on the Range:
Gunman Chronicles

.09

“The most noticeable thing about *Gunman* is the attention to detail throughout.”

—Sal Accardo



►► GUNMAN ABOUT TOWN

The date was July 29, 1999. Valve had shifted gears from its E3 showing to its first Mod Expo on Folsom Street, San Francisco. At the event, a number of mods were catching the community's collective eyes, including Science and Industry, Action Half-Life, Chemical Existence, Kanonball, and the star of the show, Counter-Strike. Also present was one of the very first total conversions of the HL SDK: a primarily single-player experience called *Gunman*.

Gunman was a mod with a past; it had started life as a *Quake* add-on, and lumbered toward completion in the intervening years. Rewolf's lead designer and president, Herb Flower explains: "We had been working with other engines in the past, and when we got our hands on *Half-Life*, we were very excited about the engine's capabilities. [It] fulfilled almost all of the things on our wish list. Certainly, *Half-Life* was only tapping a portion of what could be done. The mod community is simply exploring those alternative uses."²

Covering the Expo event, 3D Action Planet's Sal Accardo was on hand for an initial bench test. "Not your typical mod stuff," he remarked. "The most noticeable thing about *Gunman* is the attention to detail throughout. Everything is being changed for the game, with different settings, weapons, monsters, and even drivable vehicles such as tanks for the player to tool around in." Sal continued, "A lot of work has gone into the artwork, levels, and modeling. One nifty feature is the assortment [of] new weapons which are actually customizable."³

Herb Flower explores this in more detail: "Every weapon in *Gunman* has a variety of firing modes. For instance, the standard-issue pistol allows you to select energy pulse mode, rapid-fire mode, or a more powerful charged blast. Later you'll pick up a new setting [with] the sniper-kit. The Multiple-Unit-Launch-Engine (M.U.L.E.) is by far the most useful rocket launcher ever. It can be guided, heat-seeking, or fire two spiraling rockets. The rockets can trigger on impact, on proximity, on a timer, or when tripped. And you can mix and match."



REWOLF'S REUSABLE REVOLVERS

This new strategic attempt to enhance gunplay was but one of the reasons the game was named *Gunman*. The other? You played the role of a bad-ass future colonial cavalryman named Major Archer, whose *raison d'être* is to rescue your general from the digestive tract of a gigantic slobbering alien Xenomes. "The weapons have been a part of *Gunman* since the start," Flower told IGNPC, "with the idea of each of them being a sort of Swiss army knife. The [tale] we added later, because we originally planned on *Gunman* being a multiplayer game."⁵

Valve's Doug Lombardi picks up the story: "That was an interesting project. The game was shipped right before *Counter-Strike* in 2000 on November 20. And, surprisingly, *Gunman* sold really, really well."⁶ Surprisingly? Well, the game had received rather luckluster ratings from the gaming press (our favorite being "*Half-Life* steps in a cosmic cow pie"⁷ from *cdmag.com*), who complained about the convoluted story (it was never explained who you were, and why your company was dressed in Civil War attire) while at the same time lashing out at the short completion time. "It did over a half-million units worldwide"⁸ says Doug. But let's not measure the game's success in sales figures alone, let's talk about the impetus for space cowboys shooting frothing, tentacled critters.

"*Sven Co-op*, I think, was the first announced *Half-Life* mod, but [*Gunman* was] there really early on."⁹ The game—before acquiring the "*Chronicles*" suffix when it went retail—was the work of a group of modders who became known as Rewolf. "They were a group of guys scattered out throughout the world, and they had this dream of doing this crazy, sci-fi, single-player game. They wanted to do customizable weapons and a couple of them were really into building and making their own cutscene stuff. So that was where their passion lay."¹⁰

Christopher "Ilian" McArthur, one of the Rewolf modders, adds to this grand scheme: "*Gunman* is much more action-oriented than *Half-Life*. Your guns are bigger, the enemies are tougher, and there are a whole lot more of them blocking your goal." McArthur also hints at gameplay features being considered, then nixed in the final hours of development, when he told 3D Action Planet "there are edibles in *Gunman* which give you a good deal of health back. I'll leave them up to you to find them."¹¹ Aside from the obligatory health packs, the weird stone faces, and fire, the final offering featured no Easter Eggs on which to chow down. >>

Infantry troops, giant Renasauruses, and giant sentry drones completed the primitive, prehistoric, and futuristic adversaries.

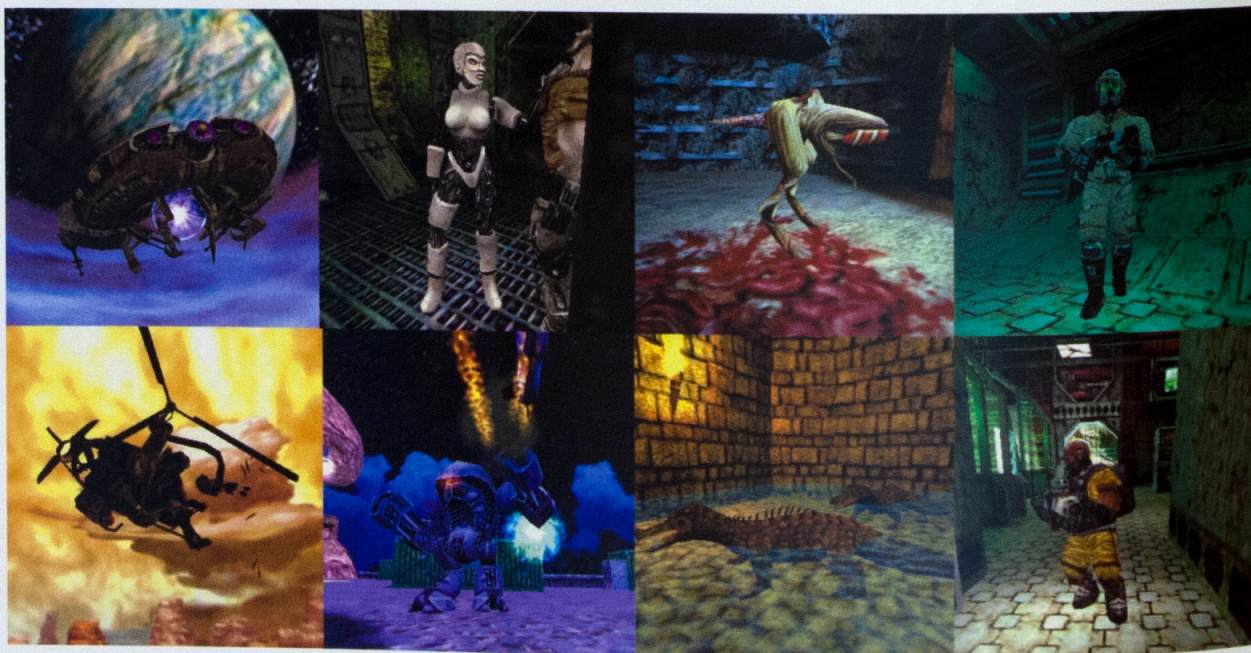
Chewable scenery or not, the suits at Sierra caught on to the interesting project at the Expo. They followed Rewolf's continuing antics for the next few months, despite the usual problems plaguing mod makers, as McArthur testifies: "Not being able to have [a] designer, programmer, and artist sit down together at the same table and figure out exactly what needs to get done is stressful."¹² This was due to the fact the team members weren't even in the same country. Sierra solved that problem was really happy to get any more *Half-Life* [materials], or anything related to *Half-Life* that they could get their hands on," Doug explains. "The *Gunman* guys had a lot of material they had created, so we brought them on site for much of that summer [2000]. We put a couple of guys [in to] help them pull the game together."¹³

The *Gunman* crew were ecstatic, as Flower tells it: "It was always the goal to go retail. It just took time for the right people to notice. I got a call from Valve. I was very excited, told the team, then we realized what this meant—extra work. We started adding all the little details, and big boss monsters to live up to commercial standards."¹⁴ With a release just in time for the holiday season, Sierra was banking on success. "It did OK. I know Philips said this about the CDi, but it actually is true in the case of *Gunman*: It did really well in Europe!"¹⁵



A variety of alien species. Aerial Drone, A.I. Representative, Beak, Chem-suited scientist, the Bandit Helicopter, Sentry, Crocodile, and Mecha Gun Bandit.

Poster art showing the Bandit helicopter



A MOD-EST SUCCESS

Those remembering Philips' ill-fated CD-based games machine can attest that "in the old days, Philips always told you the CD was big somewhere else. But with *Gunman*, it actually really did do pretty well over in Europe. It didn't do that well in the States," Doug admits. The team wished they'd had that little extra time. "I'd have loved an extra few weeks to put together a team-based multiplayer mode. The weapons customizing would be incredibly fun," Herb Flower remarked at the game's release. Unfortunately, the game needed to be shipped, and the team needed to relax. "Right now, we'd all like to crawl into a cave and hibernate,"¹⁶ said a weary and wilting Flower.

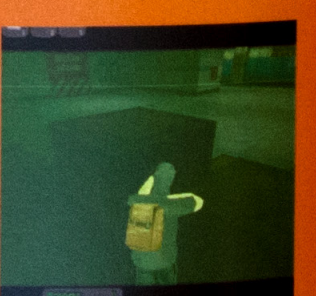
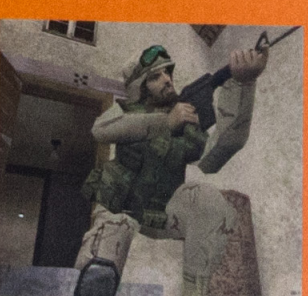
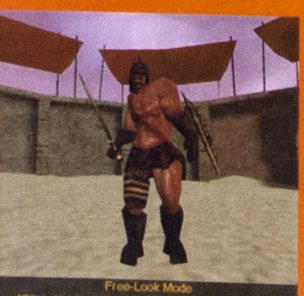
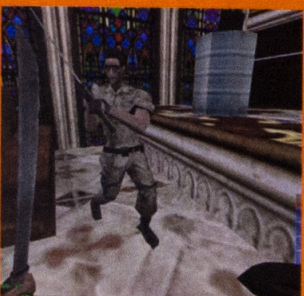
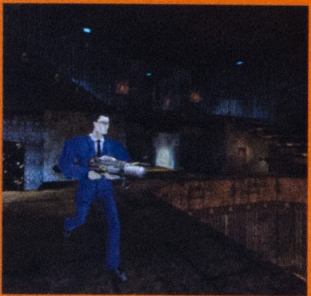
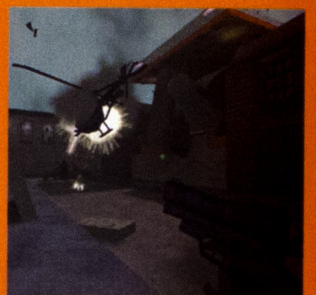
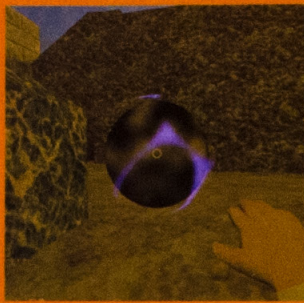
With *Gunman* done, and a sequel ruled out, the Rewolf team disbanded. "I think one of the guys actually stayed in gaming, and the rest of those guys went on to do other things. They basically decided after they shipped, they weren't going to continue as Rewolf, and they were going to do other things. A couple of the guys pursued digital animation thing. Another has some cutscene shop back East. There were about eight of them. They were good people."

Although the game ran on Valve's *Half-Life* engine, the lack of enthusiasm for the game in the States didn't affect Valve (not least because its logo wasn't on the box). "At no time did we ever come out and say this is our new game. We said 'this is Rewolf's game, and it's cool because it's a group of mod guys from around the world that we're helping get published.'"¹⁷ Doug considers Valve's help on *Gunman Chronicles* to be instrumental in making waves outside the regular community channels.

"It was one thing in a string of things that we did that was sort of above and beyond just us talking about helping the mod community, [and] that made people start to notice this mod thing." These were people who were busily commenting on the dot.com bubble. "Shortly after *Gunman* and *Counter-Strike* came out and became commercial successes, *The Economist*, *Business 2.0*, all these magazines started writing articles about Valve and the mod scene, and how Valve was a pioneering game software company. And I think that was critical to help us get the mod scene and the viability of mods into the consciousness of these business tech mags." Doug is understandably realistic about just how big an impact *Gunman* made, though. "I don't think that anybody is, you know, laying awake at night, waiting for *Gunman 2* to come out."¹⁸ ■



The original cover of *Gunman* featured a Bandit helicopter later removed to make way for the logo.



Modification Nation

.10

Mod·i·fi·ca·tion (mŏd'ə-fĭ-kā'shən) *n.*

1. The act of modifying or the condition of being modified.
2. *Biology*. Any of the changes in an organism caused by environment or activity and not genetically transmissible to offspring.
3. *Half-Life*. A home-brew endeavor by a single person or group of enthusiast individuals to design, build, populate, and release a creative addition using the original *Half-Life* Source Code, for others to participate in. See also *amateur*.



►► IT'S A MOD WORLD

More than 500 major modifications and countless more alterations to the original *Half-Life* SDK have occurred since the original game's release. From botman's eerily competent artificial intelligence to the groups of like-minded mappers at the VERC Collective, from the hilarious Mike & Pete's *Fun Half-Life Sound Pak* to the success story of *Counter-Strike*, no other game has generated such a furor of imaginative activity, and no other company has helped to tap the considerable enthusiast core.

With this exciting history in mind, we revisit 50 of *Half-Life*'s biggest, most fascinating, anomalous, or downright incomplete modifications. Presented alphabetically with the mod's last known web location, the list was chosen to reflect all types and styles of game mod (rather than maps or bots), this centennial collection is an exhaustive attempt to encapsulate the last five years of advancement within this community. Prepare for ideas, advice, tall stories, and dire warnings from many of today's hardcore hobbyists. Welcome to the Modification Nation.¹

1. ACTION HALF-LIFE

ahl.tefragged.com

Down-and-dirty deathmatch-centric gameplay (although team and last man standing are options), adding weaponry and player models from the movie universe. Don the skin of Trinity, Chow Yun Fat, or even the milk-hating Mr. T, and take down fellow action stars in a flurry of gore splats. As for hardware, there's the *Hard-Boiled* shotgun, the "hand cannon" from *Desperado*, and various "akimbo" pistols, rifles, and rudimentary kung-fu techniques.

2. AZURE SHEEP

halfife.multiplayer.it/azuresheep

This alternate take on *Blue Shift* is a single-player experience where you play Barney the security guard. Barney realizes his colleague Kate (codename *Azure Sheep*) is inside the complex, and sets off to rescue her, chaperoning various friends, plugging familiar and new incursions (including Xen Toads, Terrorists, and the infamous Barney Zombie), and revisiting *Half-Life* areas from Barney's viewpoint. A true classic.

3. BOXWAR

Interviewed: Paul "PlanetSun" Ehreth (Co-creator)

Website: www.planethalfife.com/boxwar

Boxes are a video game staple. Hide behind them, smash them apart into tiny shards that dissolve into the floor. Bounce up and down, attempting to climb up onto crates slightly higher than your knee, and fail. The mod was hailed as "one of the most unique mods ever created." PlanetSun was "completely horrible at character modeling and animation. I decided to play a trick on everyone else. I compiled a three-dimensional couch and made it into a working character model." This spawned an innovative attempt at camouflage combat.

4. BUMPERCARS

Interviewed: David "DeathToll_David" Highlander (Creator)

www.planethalfife.com/bumpercars

BumperCars is meant as a distraction compared to the more serious mod out there. "It is also the only game that takes characters from other mods and pits them against each other." This includes Barney, Gordon Freeman, Counter-Terrorist (riding a giant chicken car), and *TFC* Heavy Weapons Guy on a gigantic mini-gun.

5. BUSHIDO

Interviewed: Seth "PlayingKarrde" Powell (Project Lead)

www.planethalfife.com/bushido

"The idea came to me roughly three years ago while I was visiting a Japanese garden. I felt that I could make a really good total conversion using references and themes." This mod is "primarily a melee-based multiplayer game, something no one (at the time) had attempted before," including an innovative Honor System to level up characters.

6. BUZZYBOTS ALPHA

www.buzzybots.dk

BuzzyBots proved that textures can be smooth and cartoon-like in a world of trash-can robots with uni-wheels, upgradeable parts, and side-mounted rockets. You're asked to choose from one of five classes, each with different speeds, weapons, armors, and bombs. Weapons work when not overheating; gameplay is a mixture of *CTF* and *Counter-Strike*-style demolition, and a super chip mode where the device is moved to a door in your base.

7. CANNED TUNA

[Website currently unavailable]

Planet *Half-Life*'s Jabberwocky referred to *Canned Tuna* as "chaotic weirdness"²; he wasn't kidding. The game's weapons are novel (the instagib crowbar and rocket-turned-mortar being the most enjoyable), but the real tactical innovation was the jet-pack, effectively adding another dimension to your deathmatch. It even offers "Gib the Llamas," where random players spawn with extra speed and flying capabilities. Before the coming of the total conversion, there was this dolphin-friendly multiplayer blast.

8. CASE CLOSED

Interviewed: Steven "EraSerX" Delrue (Creator)

www.planethalfife.com/caseclosed

"[When] they released *Blue Shift*, I pushed the idea of letting you play another person in the *Half-Life* universe." In this case, it was "Bob Dewey, the janitor." The plotline was straightforward enough: "Get the hell out of the Black Mesa complex. The parts I like most are the upside down level and the scene in Xen with the zombie sitting at a broken desk." Guerrilla Games liked these parts, too; Delrue is now a level designer on the PlayStation2's, *Killzone*.

9. CHALLENGER DEEP

www.planethalfife.com/challengerdeep

A robust single-player story, *Challenger Deep* drops you to the ocean's bottom and a giant facility where scientific experiments occur with "intense anti-maspectrometer radiation." You play Gordon Freeman, battling Xen beasts as they warp in and breach the facility's hull, starting a flood. Battle through the maze of waterlogged corridors using regulation weaponry, before heading out into the open and to a submarine, or stay for a spot of multiplayer.

10. CHEMICAL EXISTENCE

www.redgenesis.com

An exceptionally involved, and extremely gloomy total conversion mod, *Chemical Existence* places you in the shoes of Reece Max, trying to locate his sister in the war-torn city of Motashe. The action takes a continuous turn for the grim as the city becomes more and more dilapidated before a freakdown dream sequence only *Max Payne* can top. A great use of lighting, a pervading sense of doom, and some great multiplayer modes.



Action Half-Life



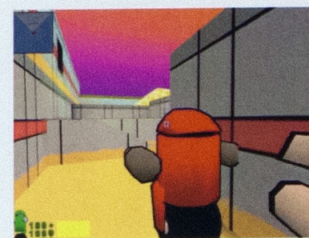
Boxwar



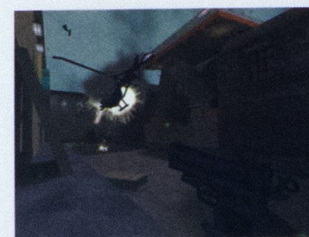
BumperCars



Bushido



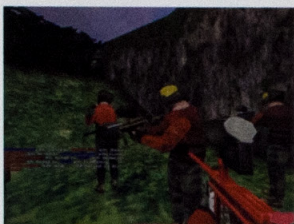
BuzzyBots Alpha



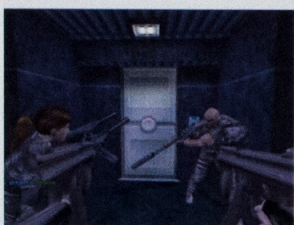
Chemical Existence



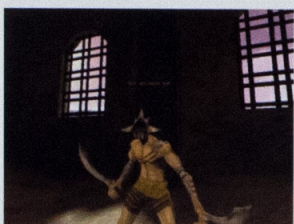
Deathmatch Classic



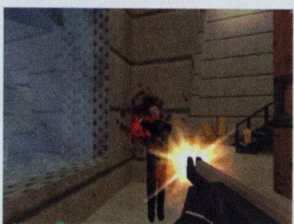
Digital Paintball



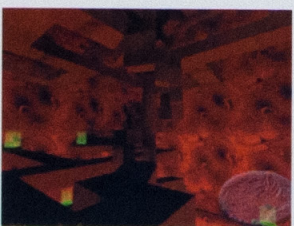
Existence



Gladiator



Goldeneye



Grenades, Snarks, & Teleporters

11. CONUNDRUM

www.planethalflife.com/conundrum

Before *Challenger Deep*, the Grand Unification Boys pieced together a more leisurely single-player mission, with the emphasis on solving a series of puzzles—in Egypt; specifically in a truncated version of ancient Egypt found under the Black Mesa facilities. The sequel (*Conundrum 2*) introduced a female character who must endure jumping, blocks, and puzzles before a final audience with the Nihilanth.

12. DEATHMATCH CLASSIC

www.valvesoftware.com

In 2000 Valve Software (with the help of the *Holy Wars* team) produced *Deathmatch Classic*—all the *Quake* levels intact, and all-new models (including new animations). They managed it in three months. As Gabe told GameSpy, “It really reminded us of just how kick-ass the game was, and thought it would be a great reminder for everyone and a tribute to id’s accomplishments if we were to finish it and release it.”

13. DESERT CRISIS

www.desertcrisis.com

Deathmatch action with the US Army, the SOTD (Scourge of the Desert, a.k.a. “The Scorpion’s Sting”), and UP-KO (United Peace-Keeping Organization) collide in a contemporary alternate earth battlefield. After customizing armor and weapons, choose your broomstick (like the akimbo Desert Eagles), melee armaments (including dual-machetes or a sledgehammer), and a special item (such as night goggles or an RPG). Among the deathmatches are buildings with impressive depth, and herding matches where enemies must be pinned in certain zones.

14. DIGITAL PAINTBALL

www.digitalpaintball.net

There have been paintball modifications since the *Quake Paintball* days. *Digital Paintball* sets up to be as accurate a simulation of the sport as possible, down to the authentic markers (guns) that you buy. Environments are flat and filled with plastic barriers and obstacles, and a marker’s rate of fire depends on the weapon and how adept you are at tapping your mouse. Add a “lean” move, and you have the best reason to watch digital paint dry.

15. EXISTENCE

www.whatisexistence.com

Originally known as *The Matrix HL*, you begin as a rebel or an agent armed with a knife, a Nokia cell-phone, and a pistol. The phone is a novel way to purchase weaponry, such as dual MP5s or a mini-gun. Customize your character and inventory with jumping or quickness accoutrements. A recently added “Capture the Doctor” mode completes this great-looking homage to the Wachowskis’ first *Matrix* movie, released at the height of the film’s success.

16. FIREARMS

www.firearmsmod.com

Known as a weapons modification (the latest release has more than 30 of them), *Firearms* is a squad-based game in the vein of *Counter-Strike*, but the weapon fire is more devastating. After choosing your class and winning fights, you work your way up the ranks into different specializations (such as stealth or marksmanship), with final abilities honed to allow silent walking or the mastering of a sniper rifle. *Firearms* is the thinking man’s fragathon.

17. GLADIATOR

www.planethalflife.com/gladiator

Only an Alpha build exists of this third-person hack-fest. This slower, third-person tactical butchery is given an extra layer of ingenuity as you need to increase your notoriety rating by keeping the audience interested in your bloody exploits. Tactics including having some of your team shielding while others swipe with swords only hinted at the layers of depth the game would bring.

18. GLOBAL WARFARE

www.planethalflife.com/globalwarfare

Skill-based urban warfare classes matter. The classes run their usual gamut (such as the sniper or soldier each with specialized weapons), while the less favored personnel (the radio operator or engineer) have their own strengths (calling in an air strike or demolishing a city block, respectively). Add a transport vehicle that must be knocked out of commission by rockets (and only one, super-heavy launcher to use) and you have one long-standing, excellent alternative to *Counter-Strike*.

19. GOLDENEYE

[Website currently unavailable]

The beginning of the first-person shooter console revolution began with British developer Rare’s take on the Bond movie *Goldeneye*, and the Nintendo 64 game of the same theme (1997’s *Goldeneye 007*). This mod was a bunch of multiplayer levels created from the original game (but no single play), offering the same array of weapons, but actual bloodletting, and the ability to jump down to lower levels (an ability lacking in the original).

20. GRENADES, SNARKS, & TELEPORTERS

www.planethalflife.com/gst

A famous attempt to inject humor into the deathmatch game, with a series of comedic weapons including the antlers of death, the nuclear golf club, various animal projectiles (including chickens and the excellent flying snark), as well as a handy grapple and some deathmatch accoutrements (round timers and PEV suit indicator colors, for example), and some excellent levels too. Created by the team responsible for *Guards and Thieves*, an homage to *Thief*.

21. HALF-QUAKE AND HALF-QUAKE: AMEN

www.halfquake.com

Utilizing Dali-esque visuals (there are levels completely in cel-shaded black and white), your character is brought into existence to be immersed in the tormented abstract. This includes the puzzles; the game's literature touts the "confusing design" that encompasses "12 parts of pure sadism." Even the website is a trip (to a mental patient's inner ramblings). Play this mangled offering, then decide whether you're in the "loath it" or "love it" camp. There are no half-hearted emotions in *Half-Quake*.

22. HL RALLY

www.hlrally.net

This mod simultaneously shows how versatile the *Half-Life* community is, and reveals the perspicacious nature of modders. The results are surprisingly spectacular. The in-game cockpit camera shows of an identical facsimile of a real rally car. With nine cars, fully upgradable parts (winning races earns you cash to spend customizing these four-wheeled beasts), but no current damage collision, *Half-Life Rally* is a testament to gritty innovation.

23. HOLY WARS

Interviewed: Paolo "Nusco" Perrotta
(Co-creator, programmer)

www.planethalflife.com/holywars

The "last man standing" premise of *Holy Wars* is straightforward enough (fight for a chance to head to Heaven), and team programmer Paolo Perrotta can trace his involvement with *Half-Life* longer than most. "The core *Holy Wars* team was involved in the development of *Deathmatch Classic* for Valve." The game concept pre-dates even *Half-Life*. Back in 1996, *Holy Wars* was created as a *Quake* mod, "and then ported to all the games in the *Quake* series. Team play was all the rage back then—Zoid's *CTF* had taken the world by storm. I guess I wanted to be a part of that."

24. HOSTILE INTENT

www.planethalflife.com/hostileintent

Beginning life as *The Sherman Project* (a mod to mimic *Rainbow Six*), had the project not imploded, it's creator "Shaka" reckons "it would have been the premiere *HL* mod of all time." Soldiering on with a new crew, *Hostile Intent* was transformed into a team deathmatch with NATO troops against Tango terrorists. Offering up impressive visuals, and "iron-sights" for most of its weapons (you use the actual weapon model's sights to aim), this *Counter-Strike* counterfeit is a well-rounded attempt.

25. INTERNATIONAL ONLINE SOCCER

Interviewed: Mark "routetwo" Gornall
(Designer, Programmer)

www.planethalflife.com/ios

Perhaps the most innovative modification to grace the *Half-Life* community: team-play soccer. This online team match based on the game propelled the game engine to new heights never seen before or since, and is the firm favorite among many Valve employees. "*International Online Soccer* was designed during the World Cup 2002 and was written because I enjoy video game football and could think of nothing better than being able to play it online with my friends."

26. KANONBALL

www.planethalflife.com/kanonball

A star of the first ever Mod Expo, *Kanonball* offers fast-paced and faster-passing gameplay as your team works to drop, punt, or pitch the ball at the goal while your opposition body-checks, dives, and leaps to interfere. The result is a *Tron*-style stadium (with novel scenery such as doors or barricades), interactive audiences that gasp and cheer, and a flood of pyrotechnics when the eventual score happens. Team PCP certainly went all-out on this one.

27. MONKEYSTRIKE

Interviewed: Friedrich "FrieChamp" Bode (Co-creator)

www.monkeystrike.com

There are "six monkey classes the player can choose from," including the lemur, baboon, and of course, the gorilla. The game modes include deathmatch, "capture the banana," and "fruity sacrifice," which is all about fruit retrieval and guarding your own sacrifice point. "I think simply the fact that this mod is about primates shooting each other with fruit guns in cartoony levels sets it apart from all the other 'realistic tactical warfare' mods and games."

28. THE OPERA

opera.redeemedsoft.com

Described by Planet *Half-Life*'s Stylez as "a gun ballet", you choose a Discipline (a tactical advantage such as knowing how many bullets you have left, or increased accuracy), then tear apart an opponent through use of leaps, dives, rolls, and hundreds of bullets. A single-player "Mookmatch" involving plugging sluggish bots rounds out an interesting take on John Woo-style action. The mod's inventors are currently under the wing of Raven Software working on *Quake IV* engine projects.

29. PEACES LIKE US

www2d.biglobe.ne.jp/%7Eks_wca/shlhtm/wca_hl1e.htm

This exceptional single-player outing heads off into alternate reality, where the Black Mesa scientists and Xen creatures joined together instead of fighting. It then moves forward into various meticulously crafted environments that really show off creator Koumei Satou's scenic construction prowess, and later on, surreal elements and musical accomplishments—and lots of furious puzzle-solving. Fraternally twinned with *Sweet Half-Life*, *Peaces Like Us* offers a professional-grade excursion into a slightly dreamlike *Half-Life* reality.

30. PIRATES, VIKINGS, AND KNIGHTS

www.pvkmod.com

Bordering on the bizarre, disparate historical clans collide in a three-way battle, with each tribe having their own strengths and weaknesses. Pirates are light, quick, weak, and carry musket firepower; the Vikings are stronger, slower, and more prone to hand-to-hand pillaging; while the Knights strike a happy medium between the two. Impressive level design and numerous game modes (including the infamous capture the booty) finish this swashbuckling in a land that time forgot.



Half-Quake and Half-Quake: Amen



HL Rally



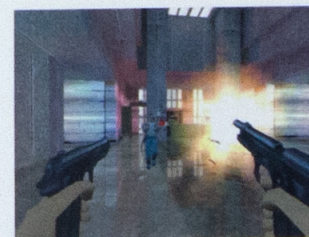
Holy Wars



Kanonball



Monkeystrike



The Opera



Poke646



Natural Selection



Outlaws



Ricochet



Runaway Train



Scientist Hunt

31. POKE646

www.poke646.com

An amazing single-player retelling of the Black Mesa mess from a different angle (it's all about research by a government-appointed agency poking into alien anomalies called Poke646). The environments, textures, weapons, and music are new. The armaments you plug your familiar foes with are just as entertaining, including the "Makita Nailgun," a nifty bow gun, and even a squeezable Xen-beast acid launcher. Creator Marc Schroeder parlayed the game into an exhibition for a college diploma, and received a passing grade.

32. NATURAL SELECTION

Interviewed: Charlie "Flayra" Cleveland
(Programmer, Designer, Team Lead)

www.natural-selection.org

Natural selection: a hybrid team/real-time strategy experience starring alien xenomorphs and marines in claw-to-hand combat. "I wasn't completely sure what kind of game I wanted to make, but I knew the key concepts that interested me: strategy, immersion, and socialization. The maps are mostly variants of the lost-colony or deserted-derelict type. They are indoors, filled with steam, smoke, and creaking metal, and somewhat claustrophobic." *Natural Selection's* biggest accomplishment is the commander mode. "By getting inside a 'command center,' one marine becomes the Commander, viewing the battlefield as a RTS player would." This melding of FPS and RTS resulted in the world's first FPSS, or first-person strategy shooter.

33. OUTLAWS

Interviewed: "TonToE" (Mapper, Modeler, Web-design, and "everything but coder")

www.planethalflife.com/outlawsmode

This mod paid homage to the classic (and under-appreciated) LucasArts first-person shooter *Outlaws*.³ "Trigger and I always enjoyed playing it. We joked how interesting it would be to see *Outlaws* in 3D." From quick-draw duels to a 24-player death-matches, to the game's crank-handled chain gun (a must-see when utilized by "granny"), there's plenty of violently enthusiastic team modes, such as "Kill the Fool with the Chicken" (or KFC), a fowl-based endeavor at the "hunted" play style.

34. RICOCHET

www.valvesoftware.com

Released by the Valve during a bug fix and update to *Half-Life*, *Ricochet* is easy to play but difficult to master. You appear in a circular *Tron*-style platform. There's no jumping or crouching, you run and bounce on linked pads, sending discs (your only weapon) at your opponents. It can knock them off their platforms, or (if appropriately powered up) decapitate or split into three discs.

35. ROCKET CROWBAR

www.rocketcrowbar.com

A weapons modification with a wacky bent, *RC* tweaked the original game's weapons, adding insane secondary fire functionality. Even Freeman's initial and iconic crowbar gets a portable rocket launch as an alternate attack (hence the name). The tau cannon teleports, and the glock propels you forward when fired (allowing access to upper ledges), while the rocket launcher tosses proximity mines in the shape of scientists or the Barney character from *Half-Life*.

36. RUNAWAY TRAIN

dynamic5.gamespy.com/~trainhunters

Taking the multiplayer map Subtransit, *Runaway Train* expands on the extra protection and speed afforded by the level's train which made it an excellent (and movable) defensive position. The train is the central objective, as points are awarded the longer you remain on it. There are new weapons (such as the *Unreal Tournament*-inspired brick cannon), camouflaged satchel bombs, and even a train stopper gun to slow your lurching locomotive. Now known as *Train Hunters*.

37. SABANETA 2050

[Website currently unavailable]

A team mod where you pick which side of the law you're on, *Sabaneta 2050* offers two styles of hunted gameplay with each side either defending a gun-toting commander from the others, or with the criminals having the commander to keep from the cops. With some pop culture references thrown in (criminals can take the form of Leatherface or Boba Fett for example), this furious cop-on-criminal bloodbath is as frantic as it is bloody.

38. SCIENCE AND INDUSTRY

www.planethalflife.com/si

As a security officer for one of two rival companies, both involved in chemicals and weapons research, your job is to ensure the survival of your corporation via knocking a rival scientist unconscious and returning him to your lab to toil for you. Their creations (such as assault shotguns and regenerative biotechnology) are finished during the team-based match, tested on your adversaries, who are in turn stealing your scientists in an attempt to match and surpass your productivity. One of the oldest and best-loved mods around.

39. SCIENTIST HUNT

www.telefrazed.com/thefatal/scihunt.shtml

Featuring over-the-top gibbing and a variety of comedic mallets (not to mention sawn-off shotguns and the offal-chewing chainsaw), some of which can launch scientists through windows or over scenery, the objective is simple: Hack more scientists than your opponents to win the match. Hardly brain-taxing stuff, and offering an abattoir full of messy, explosive effects (as well as some new AI for the scientists), *Scientist Hunt* is a bloody good time.

40. SNOW WAR

Interviewed: Teemu P. "Zilppuri" (Team Leader)

www.planethalflife.com/snowwar

The idea came to Teemu P. "Zilppuri" on the schoolyard. "Some guys were throwing stones at each other. My friend got this idea that somebody should add throwing stones to *Counter-Strike*." Then a slight rethink: "Snowballs! In early versions, the snowballs exploded after a while (they were modified hand grenades) and getting hit by snowballs made players explode to bloody gibs." After the bloodlust waned, Teemu created a "very nonviolent or 'child friendly' mod."

41. THE SPECIALISTS

www.specialistsmod.net

Well loved by the community, the gameplay structure allows you to weigh yourself down with powerful (but unwieldy) heavy weapons or light (but less damaging) ordnance, then slow down the action at the opportune moment via a "stunt" button, and finish your foe in a bullet flurry you can see entering your opponent. Add the "wall flipping" maneuver, and various single and team deathmatch modes, and you have a mod that captures the frantic melee of a Wachowski flick.

42. SVEN CO-OP

www.svencoop.com

Sven Co-op has ballooned from its origins as a simple retelling of the original game, albeit with a new twist: You're part of a two-man team, replaying the game in cooperative mode with extra helpings of monsters and mayhem. Recent updates include improved physics, placing headcrabs on the craniums of your foes, and a classic blastathon involving you and your friends tackling an Osprey as it drops dozens of enemy grunts.

43. SWEET HALF-LIFE

www2d.biglobe.ne.jp/~ks_wca/shlhtm/shl_fm_e.htm

A single-player mod (designed by Marc Ellis, with team help including *Peaces Like Us* master mapper Koumei Satou) offers a sideways look at the unfolding terror from the original *Half-Life* game. Scientists are in HEV suits to battle Xen beings, soldiers (including one sporting a mini-gun), and a new menacing race of "gray" aliens. An elaborate production with many puzzles and combat, redone vocal work, exquisite architectural elements, and superb orchestral music.

44. THEY HUNGER

www.planethalflife.com/manke

Neil Manke (responsible for *Underworld Bloodlines* and the *USS Darkstar* map with his team over at Black Widow Games) perfected a *Resident Evil*-style game in three separate chapters (*They Hunger*, *They Hunger 2: Rest in Pieces*, and *They Hunger 3: Rude Awakening*). With gruesome experiments, a gloomy town in perpetual twilight, more than 56 maps, and even limited deathmatch antics, this is the premiere *Half-Life* horror conversion.

45. TODESANGST

Interviewed: Daryn "PeppyFool" Waite (Co-creator)

www.peppyfool.com

Todesangst is a German word meaning "fear of death," and is an engrossing single-player mod involving a sinister character, Dr. Jack Newell. He's an "expert chaos theory mathematician and director of Black Mesa R&D. Gordon Freeman and Dr. Newell have always had an adversarial relationship at best, and Gordon's hero status following the containment of Xen only served to inflame Dr. Newell's hatred and jealousy of him."

46. TURBO

[Website currently unavailable]

Created by *Canned Tuna's* Randomnine, *Turbo* combines the thrills of snark racing with the mayhem of action combat. The impetus of the mod began on a forum Randomnine frequented, and three weeks later, the first Alpha build was born. Your hover-snark zips through checkpoints in the correct order, while opponents have machine guns and homing rockets to launch.

47. UNDERWORLD: BLOODLINE

www.planethalflife.com/manke

Sony Pictures needed a novel method of advertising its horror flick *Underworld*, and found Black Widow Games, creators of *They Hunger*. They managed to create and deliver gothic werewolf-on-vampire combat in two months. With only two maps, characters are at least different; the vampires jump higher while the werewolves are quicker, and everyone's armed with sharp maiming equipment. Collect hybrids and win points for your team after you secure them in cages, in a novel take on capture the flag.

48. VAMPIRE SLAYER

Interviewed: Mark "routetwo" Gornall

(Designer and Programmer)

www.planethalflife.com/vampire

This was an attempt to create "a team-based multiplayer mod where each team had different abilities. The atmosphere surrounding vampires was tempting to use in a game. While the premise of the team-play is simple ("the teams have to wipe out the opposition"), the character you choose, their unique innate ability (individual vamps have nightvision or stealth skills, while the hunters have an increased armor), and the tactics for each side are notably different.

49. WANTED

www.wantedhl.com

Wanted is a total conversion set in the late 19th century Wild West, with a multiplayer mode tacked on. The involving single-player quest offers interactions with American Indians, cowboys, miners, scorpions, snakes, and large mountain cats. The weapons include a gatling gun, a lever-operated shotgun, and a Winchester rifle. Rustle up a posse in deathmatch, challenge your opponent to a High Noon duel (a two-player duel to the death, five times in a row), or play capture the chicken.

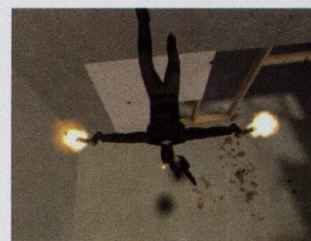
50. WIZARD WARS

Interviewed: Alan "SirAlanF" Fischer

(Wizard Wars Co-Creator)

www.planethalflife.com/wizardwars

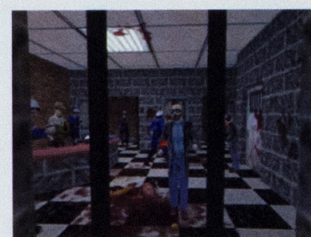
"*Half-life TFC* was the network game of choice in our dorm hall, and we started joking about how we should make an 'unrealistic' mod with comical models and bizarre weapons, but a still enjoyable play style." Amusing play elements included the beanstalk. "This was quite a unique feature, because it was basically a ladder that you could put anywhere." This innovation even resulted in applause from Valve, and the team has the e-mail to prove it. The team feels proud of the game they conjured: "Definitely! Whenever we have a LAN party, *WizardWars* is always one of the first games we play."



The Specialists



Sweet Half-Life



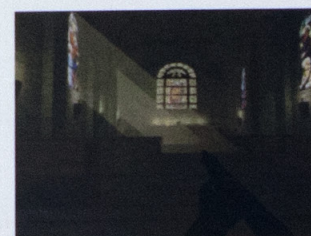
They Hunger



Todesangst



Turbo



Vampire Slayer

Art suggestion please

Metamorphosis: Extra Life for Half-Life

.11

“You’ve been there before, but your character doesn’t know what he’s in for. There are some really creepy and exciting feelings that go with that [and these] make *Opposing Force* so perfectly unique and familiar at the same time.”

—Randy Pitchford



BOXING CLEVER

Before charting the expansions, and the various official iterations, it is important to note the various versions of the core game released since 1998. Valve's Doug Lombardi is master of ceremonies. First up was the *Half-Life Preliminary Findings* CD, shipped to retailers in late October 1998 with demo footage and interviews. But the main thrust was the different iterations of the main game.

Doug: "Every time we introduced a SKU¹ [Stock Keeping Unit], we tried something new with it other than just change the box. We were the first to do the Game of the Year Edition." Before that repackaging though, was the original release. This is usually referred to as "the orange box with the metallic front." It launched on November 10, 1998. "That has *Half-Life 1* single-player and *Half-Life Deathmatch* and nothing else in it."²

Doug wasn't happy with this initial offering: "I always hated that box; it was incredibly vague. I love the orange, but that was about all. I always wanted to put a hero on the front, whether it was one of the scientists or Gordon."³ Doug was waging internal box wars as soon as the release sat on store shelves in November. While a lack of a recognizable character may have confused less serious purchasers, there was a second, much more insidious fight that Valve had to win for the pride of the studio, and for gamers everywhere.

TESTING MATTEL'S METTLE

"We hit and sustained the number two sales position November through March in the States." What software juggernaut had manhandled *Half-Life* into the second spot? *Trespasser*? *SiN*? Something much more fearsome: *Barbie's Digital Camera*. "Everybody was pissed as hell because they bundled the camera with it for \$70. I remember calling PC Data, now NPD Techworld, and trying to declassify that as entertainment software, because it had a camera in it. We should be Number 1!"⁴

PC Data didn't budge, and *Half-Life* wasn't Number 1, although Sierra's February 1999 press release was expertly constructed to avoid the Barbie backlash: "For the month of December in the United States, *Half-Life* generated more revenue than any other PC game.*" Note the asterisk, as it refers to a tiny addendum at the bottom of the press release mentioning the ignominy of it all: "*Per PC Data. Ranking does not include *Barbie's Digital Camera*, which shipped with hardware."⁵

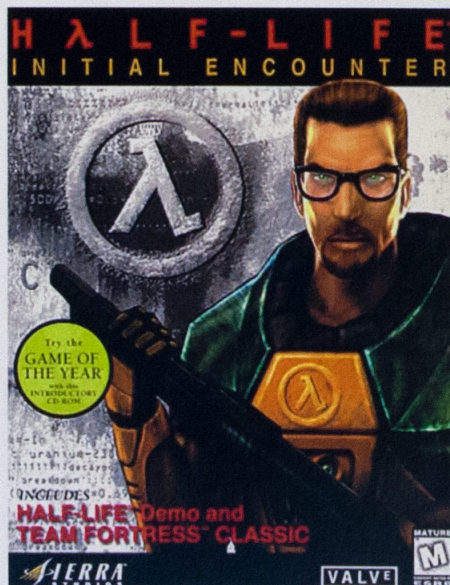
Back to the non-Barbie software: February 12 (or 19, details are a little hazy), 1999, brings the release of *Half-Life Uplink*, the public game demo initially offered as a free download, with a small new adventure that many *Half-Life* fans have never played. It involves battling your way into a satellite uplink dome and re-aligning a communications dish to save some trapped scientists.

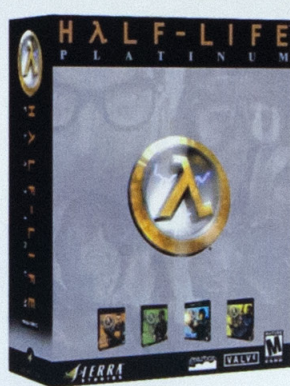
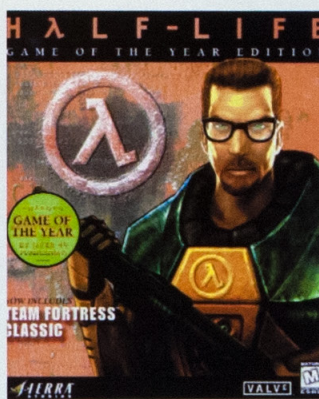
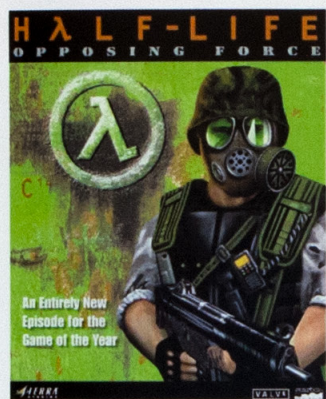
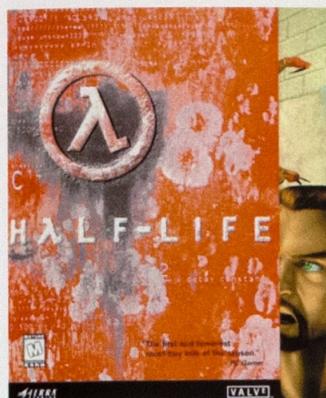
It was actually the first add-on for *Half-Life* that Valve completed once the main game had shipped, as Marc Laidlaw explains: "By the time we finished *Half-Life*, we wanted to streamline the development process. The *Uplink* mission pack tested that out. One person built the world, another did all the entity work to create a whole experience; a handful of people who put it together with audio that we had left over. There were a bunch of scenes in *Half-Life* that we wanted to do and weren't able to pull off. In some cases we already had audio. So *Uplink* was a separate mission about tuning the antennae to the satellite you launched when it was up there. From there we thought, 'Let's build the next game this way.'"⁶ >>



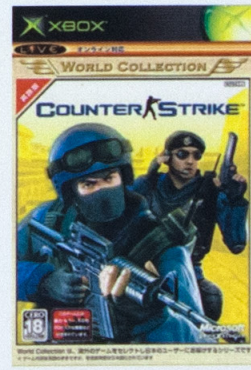
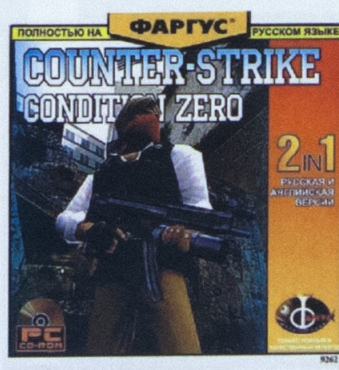
Box and in-game screen from *Uplink*, still available to download and play for free

Initial Encounter box art, from the low-priced demo of the same name





The *Half-Life* and related game boxes during various stages of evolution



Foreign boxes of Valve's software sold throughout the world

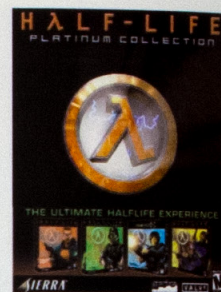
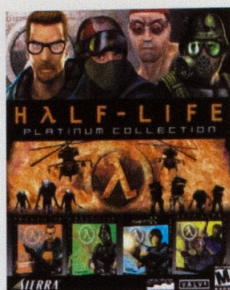
TFC IS THE PLACE TO BE

While *Uplink* can be seen as the first method of creating game "noodles" that could be released inside or after the main game, there was a second type of software—the repackaging. This began almost as soon as *Uplink* was complete: "In the winter of 1999, we did a box the size of all PC game boxes now, with a white background, and called it *Half-Life: Initial Encounter*. It was *Uplink* and *TFC* and *Half-Life Deathmatch* for \$12. It did terribly [laughs]! And only got taken into the North American market; in Europe they went 'nahhhh...'"⁷ Around the same time, Valve was readying itself for its first offering other than a Freeman adventure.

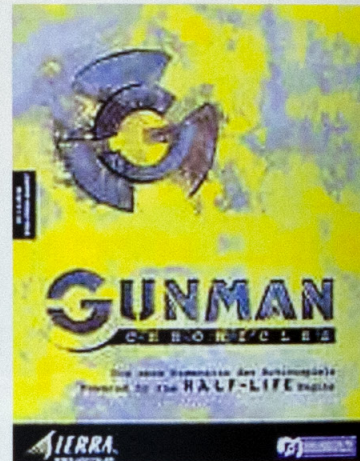
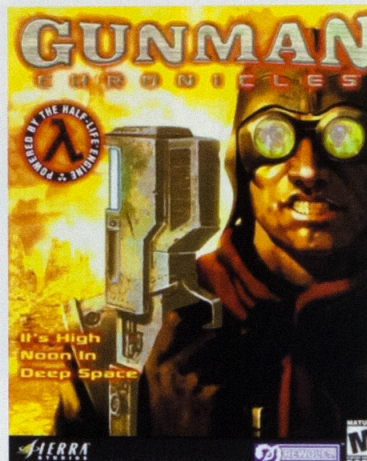
"On April 7, 1999, we finished *Team Fortress Classic*, put it online and on cover mount magazine discs, but we also wanted to make it more immediate for the people who buy games. Because this whole notion of having to 'go patch' and find the versions was something that Valve wanted to get around."⁸ Streamlining this process also yielded monetary dividends, and began to cater to later adopters.

"On June 25, 1999, we introduced the *Half-Life Game of the Year* box." Doug Lombardi wins the battle of the box art. "I get my hero on the front because Gabe finally concedes that it's time to go mainstream! We put *Team Fortress Classic* in the box."⁹ In addition, *Half-Life* and *Deathmatch* were enclosed, and "the orange box with the metallic front" is phased out (along with the gatefold art frieze inside, which is replaced by the Osprey desert landing scene). Doug's fight for Gordon gazing out of the cover pays off: "For the first time ever, *Half-Life* goes to Number 1 in July of 1999. So, Barbie finally gets beaten."¹⁰

Fast-forward to the end of the year. "*Opposing Force* came out on November 19th, 1999, in the green box with Shephard on the front. That's Gearbox's first add-on pack." The cavernous cardboard held the first large-scale expansion to the game, and was part of an overall box concept. "For *Game of the Year*, we had this template with the black bar at the top with that marked metal in the background and the character. We turned it to green and put Shephard on the front. Immediately after that, in time for Christmas (on December 19, 1999), we come out with the *Adrenaline Pack*, which is the big double-wide box with *Half-Life Game of the Year*, *Half-Life Team Fortress Classic*, and *Opposing Force* in it."¹¹

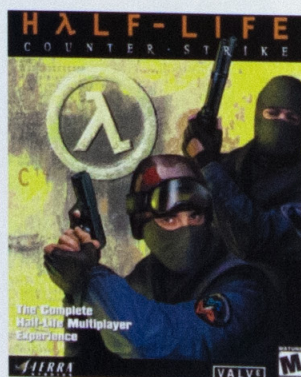
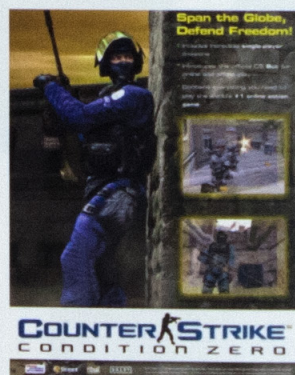


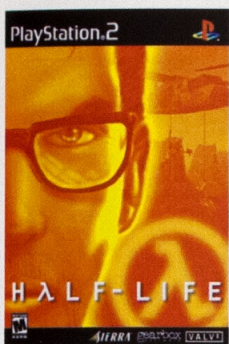
Various concept designs for the Platinum Pack advertising



Gunman Chronicle box art. Outside the United States, the gunman's face and weapon was removed.

The Counter-Strike box-outs, including variations on advertising for the game





Design for the box of the PS2 version and magazine advertising

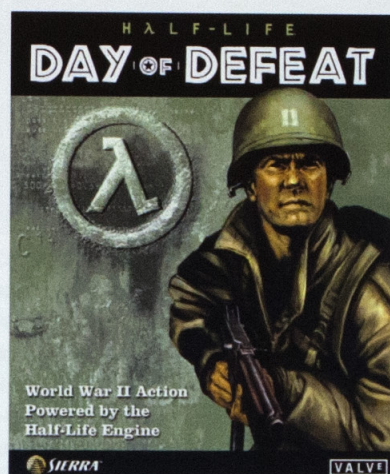
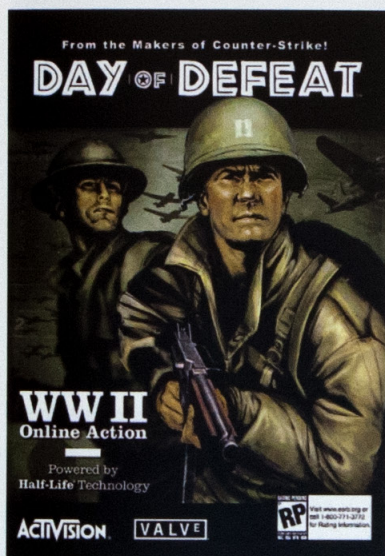


THE ESSENTIAL COLLECTION

Now into 2000, November was the biggest month by far. Simultaneously launching on November 9 (although some date it at the 14th) is the *Half-Life Platinum Pack*, and a stand-alone retail version of *Counter-Strike*. "Platinum Pack" is now the fat box instead of the big *Monopoly* box of the *Adrenaline Pack*. It adds *Counter-Strike* to the mix, so you've got *Half-Life*, *TFC*, *Opposing Force*, as well as *CS*.¹² The stand-alone *Counter-Strike* release features Valve's own mod, *Ricochet*, packed free with the game. Just over a week later, *Gunman Chronicles* hits the stores on November 20, without the black bar across the top (or Valve logo), but positioning the gunslinger close-up and to the right, in keeping with the art style.

Next in 2001, once the Dreamcast port of the game dies an ignominious death, the game is repackaged for the PC with the *High-Def Pack*, slotted into the "Barney blue box" with all its identifiable markings (the *Half-Life* logo, the black top strip, and the correctly positioned character) intact. The game launched on June 12, 2001. Then the retail releases halt until the holiday season, when *Half-Life Platinum Collection 2nd Edition* descends onto store shelves in October, adding *Blue Shift* into the mix. Around the same time, the PlayStation2 version of *Half-Life* with *Decay* arrives on November 12.

Then all is quiet until May 8, 2003, the release date for *Day of Defeat*. Due to a new publisher (Activision), the game didn't feature the trademark logo and black bar, although early mock-ups did adhere to this design. Later in 2003, *Counter-Strike* on the Xbox featured a brand-new design using counterterrorists based on the CZ model set, and a bespectacled commander chatting over a radio microphone to subtly hint at the Xbox Live functionality. The final retail game before *Half-Life 2* was to be *Counter-Strike: Condition Zero*, which hit stores on March 21, 2004, and featured a silver foil background and a white military-style top, along with two counterterrorists who originally posed for a *Computer Gaming World* cover. >>

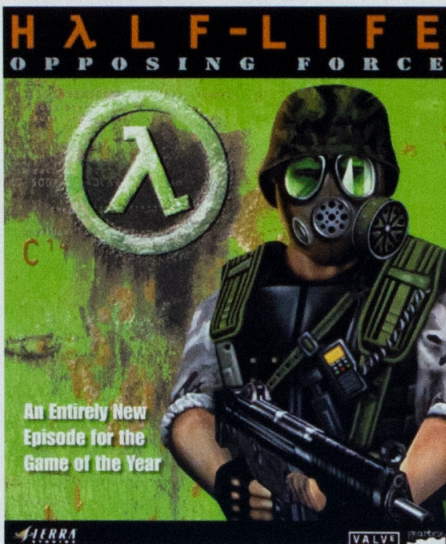


The original design for *Day of Defeat*'s cover included the Lambda Logo. Later, it was changed due to a new publisher.



The *Half-Life* guitar, constructed for the band Weezer

PART 1: THE GRUNT IS ON—OPPOSING FORCE



Sierra's 1999 E3 booth beckoned *Half-Lifers* with orange-hued *Opposing Force* kiosks (right).



OP FOR OPTIONS

The date was April 15, 1999. Hot off the digital presses ran the announcement for Valve's next *Half-Life* game: "In *Half-Life: Opposing Force* (a.k.a. 'Op For'), players return to the Black Mesa Research Facility to engage in an entirely new episode of single-player action. Gamers play a soldier this time around, instead of Gordon Freeman. Having the option of playing on the opposing force, the player will experiment with a host of new military, experimental, and alien weapons. Also a key feature will be to battle a fierce new alien race as well as interaction with more human characters. Finally, in addition to the extensive new single-player experience, gamers will compete in new multiplayer maps designed by industry all-stars."¹

Less than a month later, a large-scale booth for that year's E³ gaming show had been constructed, the first art for the upcoming game was finished (the gas-masked military man standing in front of the trademark orange background), and third-party developer Gearbox was understandably nervous about the reception this "add-on" pack was about to receive. The booth presence was a lot more extensive than Gearbox's president Randy Pitchford was expecting: "Sierra had us right on the corner of their booth on the center of the showroom floor, so it was basically *Team Fortress 2* and us front and center."²

Doug Lombardi tells us Valve's thoughts on the subject: "Sierra was somewhat tentative about trying to green-light an add-on pack for *Half-Life* because they weren't sure if it was going to [be a] hit or not. Sierra didn't really have a big add-on pack business, and to be honest, still doesn't. So, they were unlike GT or Activision, who were sort of more keen on the FPS game and how important the add-on packs were. At the same time, the guys here were not sure whether they wanted to create the add-on pack or whether they wanted an outside team to do it. And they were a little bit tentative about handing it out to an outside team because, you know... It's not nice, but truth is that most teams that do add-on packs are not A-teams. So, a lot of times the add-on packs are less than 'A' work (*Scourge of Armagon* and a couple of the other *Quake* packs notwithstanding)."³

"I understand that Valve and Sierra Studios were waiting for the 'right' team for several months after the release of *Half-Life*. We have taken on the task with pride and dedication and have created something very remarkable that *Half-Life* fans will love. I'm not exactly sure why Valve would want to let future expansions to *Half-Life* be developed outside of their offices," Randy Pitchford (who cut his teeth on 3D Realms' *Shadow Warrior*) confided in an early interview, "but I suspect Valve wanted to focus on their future titles. However, I doubt they would've trusted the expansion of the *Half-Life* saga to just any developer."⁴

He is correct, as Doug Lombardi explains: "Basically, what happened was in February of '99, about three months after the first game [*Half-Life*] came out, the Gearbox guys [emerged from previous company], Rebel Boat Rocker, [were working on] an EA project—*Prax War*—[when it] got dropped by EA. And a couple of our guys had worked with those guys when they were all at 3D Realms, and did *Duke Nukem* together. Randy [Pitchford], Brian Martel, and Rob [Heironimus] came up to Washington to visit some of these guys here that they knew and to talk to Gabe about possibly doing the add-on pack for *Half-Life*. Gabe and a couple of other people here [met] with them and thought these guys might be the guys."⁵

CORPORAL BEINGS: INTRODUCING ADRIAN SHEPHARD

"They sent them over to visit with me and Scott Lynch, who is now our COO. At the time, Scott was senior VP of Sierra's core games, and I was one of the senior marketing guys over there. We met with those guys and right away, we had the same sort of opinion with them. They had their pitch down. They were like, 'It's [Adrian] Shephard, he plays one of the military guys.' They didn't have all their characters and whatnot together, but they had the high-level concept together. And basically it was sort of handed off to Gearbox and myself, and Eric Johnson and one or two other people here [at Valve] to basically make the thing happen in time for Christmas."⁶

With a hectic schedule, there was no time (or need) for game engine improvements. "[We] made the decision early on not to severely modify the engine," Pitchford states. "Changing the engine risks breaking all of the wonderful work these up-and-coming developers are creating."⁷ The reason for a return to Black Mesa was also required: Gearbox needed to have its storyline buttoned up. Pitchford explains that the overall game plan is much more than attempting to track Gordon Freeman while playing the role of Corporal Adrian Shephard. "It is only during the first third of *Op For* that Gordon is even present in the Black Mesa Research Facility. He jumps through the teleporter to Xen as Shephard is left behind to deal with an entirely new alien menace. Besides the new aliens, Shephard has to deal with the mysterious G-Man and the Black Ops assassins."⁸

With this branching plot interlocking wonderfully with the first game, Gearbox was able to reveal more about the military presence, as well as offer the soldier nine new armaments. "We provided some real-time military weapons...powerful, like the M-249 SAW machine gun,"⁹ Pitchford says. The trademark crowbar was traded in for a thicker pipe wrench "complete with a secondary overhanded windup swing that dramatically increases the damage dealt,"¹⁰ Gearbox's Landon Montgomery merrily informed *FiringSquad.com*.

Gearbox also went about reworking "the classics"—weaponry familiar to the great FPS before *Half-Life*—and players were awarded *Quake*-style rocket and grenade launchers. Finally, they completed their arsenal with a collection of biological weapons, such as the infamous barnacle gun (based off the limpet-like ceiling suckers from the original game), creating a contrast of the latest human technology balanced with organic killing equipment. Any new effects, such as the night vision goggles or the Shock Roach weapon explosions, were created by manipulation of existing engine hooks. >>



Excerpts of 160 animation frames of Corporal Shephard and the shock trooper, rendered for a flip-book that never materialized

Corporal Adrian Shephard after a slight makeover for the *Platinum Pack* advertising

PRAX WAR STORIES

Opposing Force would have turned out differently if Rebel Boat Rocker's *Prax War* hadn't been canned; many of the team jumped ship from there to form Gearbox. *Prax War* was an initial FPS foray for Electronic Arts, until it watched the end of an 18-month development cycle yield an unfinished game. Refusing to part with more capital, EA instead cancelled the project, pumping funds to American McGee's *Alice* and *The World Is Not Enough*. Missing the technology window, with little press attention and overly ambitious engine designs (the game was set to be a cross between *Command & Conquer* and *Halo* before the birth of the Bungie classic), the game was doomed to failure. Only a few screenshots remain.



MEETING MURPHY, BARNES, AND OTIS

It wouldn't be a sequel (or at least, an expansion pack that was changed at the last minute to a full-blown follow-up) without a bolstered character and enemy roster. More than 20 additional types were crammed into this new expedition, including soldiers you commanded. There were medics who administer the potent healing panaceas that populate every first-person shooter. The torch engineers acted as living, breathing keys in a novel method to remove the stigma attached to searching for blue, red, and gold unlocking devices. And then there was the extra guards, and the lovable oaf Otis Laurey, the overweight "Barney" of *Opposing Force*.

"He and Barney work the patrol shifts around Black Mesa," Landon informed *FiringSquad.com*, "and Otis represents the lazier side of the security equation. He may be a little bigger, and he may feel a little sorrier for himself than most people, but he makes up for his lack of motivation and affection for frosted doughnuts with some serious firepower, the Desert Eagle .357."¹¹ It was even possible to "herd" up to six of your NPC friends at once (even the hand-cannon wielding Otis on a sugar high), although it was difficult not to let them succumb to enemy fire.

For those craving a killing, Gearbox increased the enemy incursions to include squads of Black Ops assassins backing up the female ninja from *Half-Life*, and a brand-new species of sharp-clawed extraterrestrials (referred to as "Race-X" or "Aliens"). These took the forms of lumpy and spiny masses (pit drones), some with one giant eye (the voltigores), and pit worm and headcrab zombies (both Barney and soldiers could now sport this unattractive headgear). Pit drones in particular, benefited from enhanced AI allowing them to scamper away from danger, only to return under the watchful eyes of the shock troopers. That didn't mean, however, that the Xen invasion force was lacking. "We've learned a lot about the Xen experience. A lot of people weren't totally thrilled with it, [but] I found it to be very beautiful and interesting," Pitchford reveals. What had caused problems were some advanced jumps that "weren't really tested before that point in the game."¹²

Gearbox strove to gradually introduce different gameplay elements. To top it all off, you had a pair of manic drill instructors to shout you through the training course, which featured a brand-new element: 3D *Pitfall*-style rope-swinging and using your character's body inertia to propel you about. You'd be interrupted while attempting this innovation by Drill Sergeant Murphy ("modeled after [R. Lee Erney's] Gunnery Sergeant Hartman" in the film *Full Metal Jacket*,"¹³ according to Pitchford) or Barnes (taking elements of Lou Gossett Jr.'s Gunnery Sergeant Emil Foley from *An Officer and a Gentleman*) screaming in your ear at inopportune moments, but it served to immerse you in a slightly different world than Gordon had been used to, and show you how to propel yourself through some of the game's more unfamiliar (and fiendish) obstacles and events.



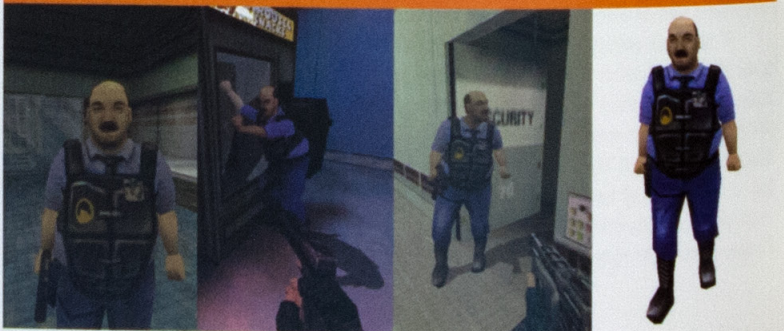
SOLDIERS OF MISFORTUNE

The biggest tactical addition to the *Half-Life* game in *Op For* were the soldiers. From the drill sergeants hollering through your training, to the different soldier-types you met through the adventure, there was always time for gruff macho posturing before a messy death at the hands of aliens.



LAUREY THE HARDY: INTRODUCING OTIS

Otis Laurey, the portly guard with a heart of gold and an appetite for destruction, was the main nonthreatening new character of *Opposing Force*.





Character model renders of the medic, drill instructor, and saw gunner

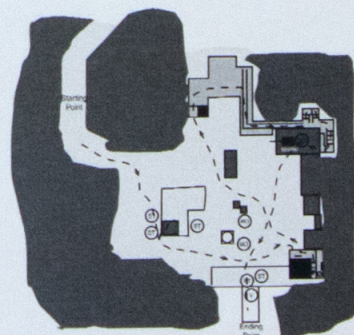
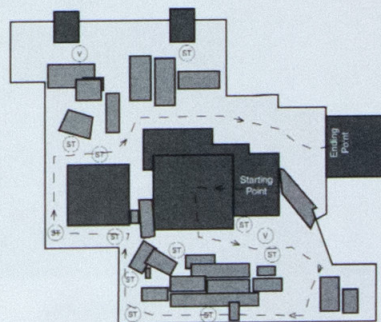
LASSOING IN LEVELORD

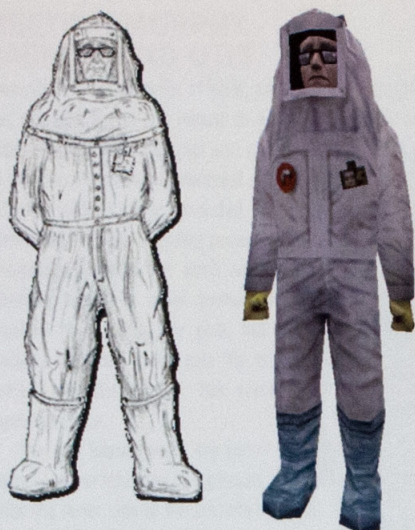
Gearbox crammed in as many of these twists and turns as they could. Randy extrapolates, "One of the features that was really cool in the original game [was] burning the tentacle with the engine. Those sort of circumstances happen [with] greater density in *Opposing Force*,"¹⁴ making this return trip more of a slide, stumble, and plummet straight into the familiar unknown. Randy sums up this return trip succinctly, "You've been there before, but your character doesn't know what he's in for. There are some really creepy and exciting feelings that go with that [and these] make *Opposing Force* so perfectly unique and familiar at the same time."¹⁵ It's very similar to *Back to the Future 2*,"¹⁶ Randy analogized, referring to the elements of watching yourself from a second perspective, and not the movie's hoverboards we're all still craving the invention of.

At the 1999 E³ event, it was Barney's new pal Otis, the drill sergeants, and the biological grappling hook that got show-goers whooping and hollering. *Opposing Force* didn't stop there. It drew on the experiences of *Half-Life* multiplayer (including the parallel development of this game mode in record time), and included deathmatches featuring a top-10 of characters the fans most enjoyed. These were the Black Ops assassin, the drill sergeant, Corporal Shephard, the grunt soldier, the cleanshut scientist, Otis, the boot camp recruit, the female ninja assassin, the heavy weapons marine, and the *Opposing Force* commander. Pitchford also opined about what he felt was missing from *HL DM*: "There isn't a DM6 that everyone wants to play,"¹⁷ (a reference to the famously popular Dark Zone *Quake* map). While Gearbox concentrated on the title's single-player aspects, it farmed out the multiplayer maps to some of the industry's most well-respected map-making luminaries. This was the infamous "All-Stars" map project.

It started in June 1999, when Richard "Levelord" Gray was first to accept the challenge. Ironically, Levelord's biggest project up until this point was *Half-Life*'s greatest perceived competitor, *SiN*, although Gearbox knew his exceptional talents from *Quake: Scourge of Armagon*. "His always clever and unique designs are sure to bring a whole new level to the *Half-Life* multiplayer experience with *Opposing Force*," Pitchford enthused at the time. "We've been great friends since the days of *Duke Nukem*," Levelord agreed. "We have a mutual respect for each other's work, and I'm very honored to work with Gearbox as well as with Valve."¹⁸ >>

Two maps from the game, commissioned for the Prima strategy guide





Scientists donned elaborate bio-suits to prevent microscopic catastrophes before larger, zombie entities crashed the party. Here's a sketch and render of this new outfit.



A CRUNCHED GEARBOX

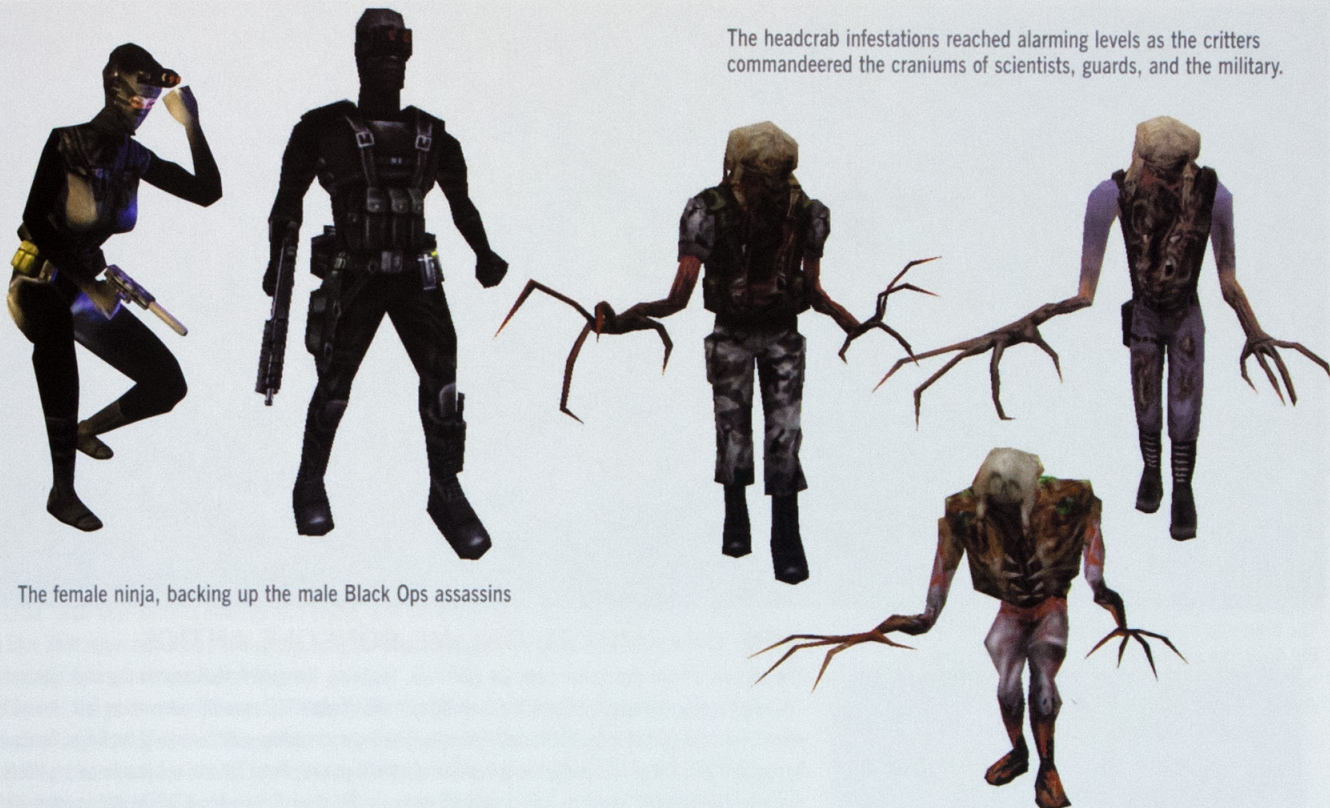
Levelord was slightly more candid nine months later in an interview for *Planet Half-Life*, after his work was done. Levelord's preferred style of deathmatch was "[the] same as sex... small and tight, and with lots of violence and blood!" And he didn't disappoint (deathmatch-wise) with the creation of Op4Repent. "This was my first experience with *Half-Life*, and I loved it. We used a modified version of the [map development program] QRadiant for *SiN*, so I was able to jump right in on *Opposing Force*. Well, [fellow mapper] Master Giggler had to give me a kick-start, but it was as easy as shit through a goose!"¹⁹ Quite. Levelord's map was joined with environments from Eric Reuter (*Shadow Warrior*, *Unreal*), Tom Mustaine (*Final Doom*, *Quake: Scourge of Armagon*, *SiN*), David Kelvin (*Shogo*, *Blood*, *Wheel of Time*), Richard Carlson (*Anachronox*, *Daikatana*, *Thief 2*) and others. "These levels have turned out to be some of the most fun ever played," Randy proudly noted in a press release.

But something was missing, even after the game shipped on Halloween 1999. It wasn't the rave reviews (publications as diverse as *GameSpot* and *Christian Game Reviews* both scored the game 90 percent). It wasn't deathmatch (even the original *Half-Life* maps received a smattering of *Op For* weaponry). It was capture the flag. Although Gearbox had earlier intentions of fitting a CTF-style game into *Opposing Force* "that played off of the strengths of CTF with alien and human classes, [this was] sidelined early on"²⁰ due to time constraints. Almost immediately after shipping, requests deluged Gearbox. These were pleas for a game distinct from *Team Fortress Classic*, as the fans wanted "team-based gaming with the wonderfully balanced and familiar *Half-Life* and *Opposing Force* weapons and characters." Gearbox duly obliged, and on June 12, 2000, *Opposing Force* was upgraded to lower latency, stabilized net code, and four CTF maps. The fans also played a part in the upgrade: "Some of the feedback features (the HUD and targeting info, including a display of which players own what power-ups and who's carrying the flags) that we've seen many other mods do different versions of, Gearbox has included,"²¹ Randy told *Planet Half-Life*. About the only rumored addition missing was voice chat. "Valve is saving [it] for *Team Fortress 2*." Ah.

"We managed to create an epic game that very much lives up to its predecessor, on time and under budget,"²² Pitchford declared after the game was finished, proudly describing that his company was the converse of rival developers with their "when it's done" mindset. This had never been accomplished before, especially in a period of around eight months. Doug's praise continues: "To the Gearbox's guys' credit, you know, they kicked ass, and in my opinion it was probably one of the best add-on packs I've ever seen done. At the last minute, you know, we decided to really push it as a bigger release, and price it as a bigger title than just your typical add-on pack. It was a bit of a risk, but it ended up turning out to be the right thing to do. I think we did about 1.4 or 1.5 million copies. So it did really, really well."²³ To Corporal Adrian Shephard and his creators: We salute you.

Added after the game shipped, *Op For* CTF gave fans more of what they wanted; a fragging good time.

The headcrab infestations reached alarming levels as the critters commandeered the craniums of scientists, guards, and the military.



The female ninja, backing up the male Black Ops assassins



Race-X alien scum. From left to right, a baby voltigore, voltigore, shock trooper, gene worm, pit drone, and pit worm.



The front and back cover original art pieces (although the back was originally for a gaming magazine), commissioned by Valve and drawn using Photoshop by Joachim Barrum. Visit his site at www.joachimart.com.

PIPE DREAMCAST: ONLINE CONSOLE ANTICS

The second official expansion pack for *Half-Life*, featuring the guard the community had nicknamed “Barney” during the original Black Mesa meltdown, didn’t start life as a PC release. In fact, it was the result of a strange and turbulent series of events, starting and ending with console giant Sega. During the spring of 2000, Valve was invited to a number of meetings with Peter Moore, the then vice president of marketing for Sega of America. Doug Lombardi picks up the story: “[Sega] had *Quake III* coming [out] for Sega’s online thing, and they wanted *Half-Life* on their platform, as well.”²⁵ Cornering the console market with free-to-play online first-person shooters, Sega’s early adoption of the medium jelled with Valve; they could finally give joypad-holders what PC players craved. “They wanted us do some multiplayer, too. So we were going to do just deathmatch, [and single player] *Half-Life*.”²⁶ However, Valve had seen other attempts at fitting the square peg of PC action titles into the round hole of console hardware and were understandably tentative.

“We had this idea that other people who had brought their games over to the consoles, basically, just did a dumbed-down version, and they sold really poorly. And so it seemed to us, ‘Why even bother doing that?’ So, we came up with this idea of ‘up-rezzing’ the models and textures and redoing all the art.”²⁷ This encompassed higher resolution textures; significantly increased polygonal detail; more animation articulation; and tweaked creature, weapon, and object definition. With Sega suitably impressed, a press release was crafted on August 29, 2000: “Sierra Studios and Gearbox Software announced today *Half-Life: Blue Shift*, the name of the exclusive mission being developed as an additional offering in *Half-Life: Dreamcast*.”²⁸ The release date was scheduled for November 1, 2000.

The Dreamcast hardware allowed a number of visual improvements to be made over the now-two-year-old PC original, and this was an advantage to owners of the console. It marked the first time a developer attempted to improve a PC original for its console counterpart. Over to Doug: “So, we get that going, and the whiz kid marketing guy [at Sierra] says, ‘Call it the High-Definition Pack!’ when we bring it over to the PC.”²⁹ Valve agrees, revealing the now-antiquated minimum specs (Pentium III or Athlon CPU, 64mb of RAM and a 3D accelerator card), but goes further. “We say, ‘Oh, we could also do a pretty simple add-on pack’ by having a side adventure.”³⁰ Early on, the *Blue Shift* concept was known as *Guard Duty*, and like *Opposing Force*, it focused on the Black Mesa disaster from a different pair of eyes. These belonged to Barney Calhoun, the guard. He had a newly polished helmet too, thanks to the graphical accoutrements afforded by the graphics upgrade.

BARNEY'S BIG ADVENTURE

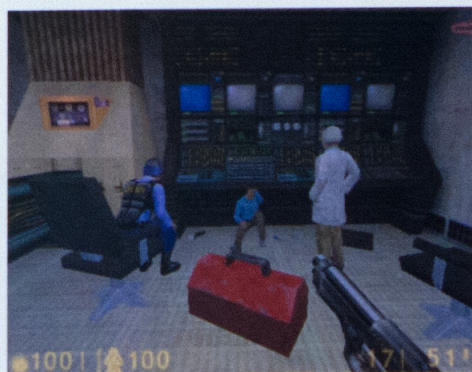
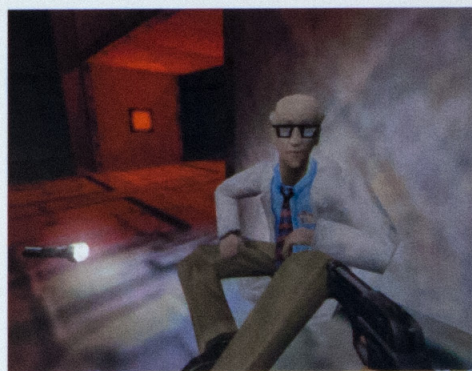
"[Remember] when you ride along the train at the beginning of the game, and Barney is standing there, and he's banging on that door?" Doug quizzes. "You start off as Barney there and you sort of parallel what happens during the experiment and what happened at Black Mesa."³¹ This initial plan was well-received: "Barney's a character we're bringing back in Half-Life 2, [so we thought] let's go ahead and extend his story a little bit."³² Barney was almost a confirmed fan favorite (ask anyone who's been reading the Barney-influenced fan-fiction online, such as Shift Change on the Planet *Half-Life* or *HalfLife2.net* forums³³).

Doug continues, "So that gets going and [the game was] meant to be just a short adventure, a couple of hours of simple gameplay for the Dreamcast. But when the Dreamcast project languished, I think the Gearbox designers decided they were going to keep pushing on that, and it ends up being, I think, probably, for a really good game player, eight hours of gameplay, maybe seven. And for somebody who is more of a novice, maybe in 15 hours. So [it] turned into an add-on pack."³⁴

The project became more interesting eight months after the initial Sega meetings, during December 2000, when Gearbox began to take the reins from the original Dreamcast *Half-Life* developers, Captivation Digital Laboratories. CDL had, according to Pitchford, "the Herculean task of re-architecting huge portions of the Half-Life engine to be specifically comfortable with the Dreamcast hardware."³⁵ While they attempted code porting and rendering for the Dreamcast, Gearbox was handling the content development and enhancement. CDL were, according to Doug, "these guys from Half Moon Bay, California; they had this little house that overlooked the beach, and there were like six of them and a dog."³⁶ It was an idyllic setting for a small, sadly now-defunct development studio, who worked on the port of the game and the genesis of the Blue Shift adventure from "late spring, early summer 2000 until Christmastime,"³⁷ Doug calculates. The company's president was Robert Morgan.

"Why was the game never released? I honestly don't know. As far as I know, the game was complete and ready to go," said Morgan. "Some people have had conspiracy theories that someone may not have wanted the game released—it's fun to think that, but it's probably more likely that it was a marketing or company politics thing."³⁸ This wasn't Robert Morgan commenting on the eventual cancellation of his studio's last project; Dreamcast Blue Shift. Ironically, he stated this regarding his first project after he helped program the finished-but-abandoned *California Raisins: The Grape Escape*³⁹ for the Nintendo Entertainment System in 1991. Hilarious grape puns and Jungian synchronicity aside, Morgan went on to form CDL, who focused on behind-the-scenes graphical accomplishments for the Dreamcast and 3DFX demonstrations. They seemed like a good fit, until the project began to falter. "They were nice guys," Doug remembers, "but they really weren't making a lot of headway in the game."⁴⁰

Action from Barney's own epic struggle: *Blue Shift*. Screens from the unreleased Dreamcast version of the game.



UP BLUE SHIFT CREEK

Meanwhile, Gearbox, "who was only signed up to do the HD Pack, was continuing to up-rez models and textures...all of that was looking excellent." What about the guys over in Half Moon Bay? Not so excellent: "We were getting, like, four frames a second on the Dreamcast, control was an issue, and multiplayer wasn't working. So the Gearbox guys were really generous, and took on some of the engineering work to try to help *Captivation* out."⁴¹ Gearbox superseded control of the title, and was more or less successful in applying the "Opposing Force formula" that worked previously—retelling the original *Half-Life* adventure from a different angle. "You will see Gordon; there are moments in the game where you'll know where Gordon is,"⁴² Randy Pitchford told *Planet Half-Life* in an early interview. But the main newcomer to the *HL* universe was Dr. Rosenberg, and the scientist and Barney interact throughout the game, tackling various objectives as they attempt to survive the Black Mesa mess.

After negotiating that locked door, Barney finds the access terminals fried, the computer databases down, and the major mechanical systems on the fritz. And that's before the massive time-space disruption. "When you were assigned to the Blue Shift, you wondered why it meant a pay increase. [A] struggle against a horde of alien invaders [and] being hunted by a military death squad sent to cover up the mess [were] definitely not in the job description,"⁴³ Randy noted. The action meanders into a rescue mission (where key personnel need removing from the clutches of extraterrestrial interrogators), and the powering up of an archaic teleportation device to warp into the aliens' world. New assault rifle and grenade launcher weaponry was thrown into the mix, too.

Gearbox even managed to sneak in a trademark Easter Egg. "We put an arcade machine in the intro of [Blue Shift] called *Prax Wars*." Randy told *Belgian Webgaming Forever* on May 9, 2001. "The real game wasn't pluralized—people were always arbitrarily pluralizing the names we tended to use—very frustrating—so this was mostly a joke."⁴⁴ With Gearbox paying serious attention to every aspect of the game, *Blue Shift* continued to expand to 37 levels in 8 chapters. This compared to 42 levels and 12 chapters in *Opposing Force*, and a whopping 90+ levels in 18 chapters for *Half-Life*. Fearing a "filler" backlash (as websites were reporting *Blue Shift* to be), Valve and Gearbox started to increase the tchotchke content by adding a full version of *Opposing Force* (which included all of the CTF multiplayer goodies—yes, that meant the freakish penguin weapon, another Op For Easter Egg), and finalized the High-Definition Pack which was hoped to coax players into donning Freeman's HEV suit one more time.





A quick comparison of rendered and in-game characters shows the graphical leap between the original and High-Def Pack

The main newcomer to the *HL* universe was Dr. Rosenberg, and the scientist and Barney interact throughout the game, tackling various objectives as they attempt to survive the Black Mesa mess.

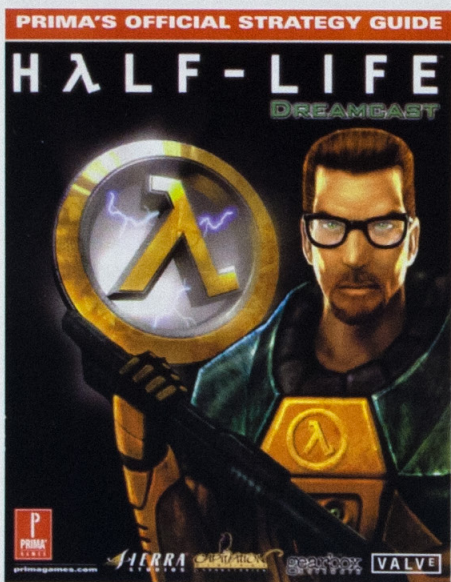


"JUST IGNORE THE RUMORS...."

While the two projects continued in tandem toward the summer's end, the PC version added an exclusive custom training mission the Dreamcast version missed out on (as the original *HL* training area was included). Meanwhile, Gearbox spent an obscene amount of time tweaking the original game's challenges and playability for the DC controller: "The player will discover cheat codes by playing the game. Many of the codes are delivered on screen as the player completes certain milestones. Once earned, the cheat codes can be entered in the menus to give the player special abilities, jump to specific sections of the game, or unlock hidden features," Randy told Planet Dreamcast, as well as informing them, "We may show some of the HUD elements on the VMU [Visual Memory Unit slotting into the joypad] screen during play...[and] you'll fit two saved games per standard-sized VMU."⁴⁵

When British-based website Eurogamer visited the ECTS (the European equivalent of E³) in September 2000, they saw the differences between the PC and DC versions firsthand after playing a 90-percent complete DC build. The textures were brighter and more colorful without being garish, with Randy being on hand to explain "that this was an unexpected side effect of the port to the Dreamcast hardware, a 'happy accident.'"⁴⁶ The frame rate was steady, the loading times were long (but being shortened from 15–20 seconds to around 5), and the default controls were in keeping with previous console FPS offerings: The four buttons to the right controlled movement while the analog stick aimed. There was even support for the Dreamcast keyboard and mouse and other, more subtle differences: "Once both games are available, it will be fun to see some of the die-hard *Half-Life* fans play through each version a million times to document what's different about the DC and PC games,"⁴⁷ Pitchford said. Nine months later, those same fans would be hoping for just one go of the Dreamcast version. Alas, it was not to be.

In the five months between December 2000 and April 2001, the Dreamcast project went from bad to worse. Sega's online venture was falling apart, so the multiplayer slated for *Blue Shift* was cancelled on March 16, 2001, raising red flags across the community (even leading to subsequent rumors of an online expansion disc for the console). Randy continued to be upbeat about the game, informing interviews as late as May 10 that "soon you'll be sitting down to play your copy of *Half-Life* for Dreamcast. Until then, just ignore the rumors."⁴⁸



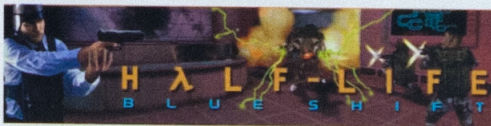
The Dreamcast version of the game was so close to completion, that gold discs (or to be precise, "orange and white" preview CDs) were sent to the press containing a 90-percent version of the game (which had un-optimized loading times). Not only was a jewel case design finished, but Prima completed (and printed) an official strategy guide for the Dreamcast version! It even contains the cheats Randy talked about in previous interviews.

PHASED OUT AND LIGHTS OUT

Doug details the final days: "Gearbox eventually took the majority of [the Dreamcast port] down to Texas and Captivation starts to get phased out, and then Sega goes lights out. We got the heads up [from Sega] in March. Sega actually publicly announced it in April."⁴⁹ During this pre-March period of uncertainty, many at Valve (including Doug) had already consulted their crystal balls to see a bleak future for the Dreamcast. "I was pushing them to make [Blue Shift] into a PC add-on pack and several other people who saw the writing on the wall." At the same time, "I saw the PC stuff and others did, too. [We] saw that the PC add-on was very successful on the PC market. The Dreamcast market was iffy, and ports on an iffy console.... I mean, it didn't take a rocket scientist [or indeed, a security guard working at a laboratory full of rocket scientists] to say, 'Wouldn't this project be better off going a few hours deeper and putting it on the PC?' and then if the Sega thing happens, it'll happen."⁵⁰ It happened.

"Sierra regrets the cancellation of *Half-Life* for the Dreamcast due to changing market conditions."⁵¹ The console was officially discontinued in March. Other third-party Sega titles in development fell like jewel-cased dominoes. The PC version, begun in tandem in late summer the previous year, made it onto store shelves on June 12, 2001. Three days later, the official announcement came. Randy's statement couldn't hide the disappointment of those who had slaved over the project, especially as the game was complete: "It would've been nice to see the product on shelves because there are some fun differences between *Blue Shift* PC and DC. But mostly, my regrets go out to the guys at Captivation Digital Laboratories who worked very hard to make one of the most complex PC games ever made fit onto the 16mb Dreamcast system. I salute them."⁵² *Blue Shift* on the PC went on to ship a commendable 800,000+ units in its first year, "which for an add-on pack is pretty amazing,"⁵³ Doug declares. With fortunate forethought, Barney Calhoun's finest hours were saved and placed on the PC, but Dreamcast fans still clamor for the game to this day.

There is a software company out there called *Blue Shift*.⁵⁴ Formed in 1993 and still successful, they mainly make baseball games... for Sega.



Web and print advertising for the PC version of *Blue Shift*, after the Dreamcast project was officially cancelled



PART 3: "THERE IS NO TRUE BEAUTY WITHOUT DECAY"⁵⁵ —HALF-LIFE ON THE PLAYSTATION2



TWO CAN PLAY AT THAT GAME

Just as *Blue Shift* was falling apart on the Dreamcast, Valve got a new console start when representatives met with Sega's new hardware nemesis Sony, who was anxious for a *Half-Life* port all of its own. Gearbox's Randy Pitchford had hinted at the project in early *Blue Shift* interviews, even touting the game's ultimate hidden feature—to play as an alien slave—"with custom attacks and a very strange perspective of the world."⁵⁶ The press first knew about it on November 10, 2000; the coverage began with a January 2001 *GamePro* exclusive, and by June 7, 2001, just days before the official cancellation of *Blue Shift*, Valve released video of the game and announced a new gameplay mode featuring two new playable characters, initially a man and a woman. This was to become known as *Half-Life: Decay*.

"It happened really quickly," Doug recalls. "The Sony guys were much more interested in us doing something different. 'It can't just be *Half-Life*, it has to be this other thing,' they told us. So they were really pushing hard for co-op [play]. Randy and his guys were up for the challenge of doing that. Gearbox did that one pretty much all by themselves. [Valve's] Jay Stelley and a couple of our engineers got in at the end and helped optimize frame rate and that kind of stuff."⁵⁷

"The Gearbox programmers created a new rendering engine specifically for the PS2 as well as many, many other engine subsystems," Randy explained to HomeLAN. "This is much more engineering work than we've done in the past," as these tasks were previously farmed out to Captivation Digital Laboratories for *Blue Shift*. This time, Randy's team strained under the workload: "This took a lot of clever people a lot of time to do correctly."⁵⁸

The offering was the original *Half-Life* in all its re-textured, higher polygonal glory, along with *Decay*, a unique cooperative adventure only available to PlayStation2 owners.

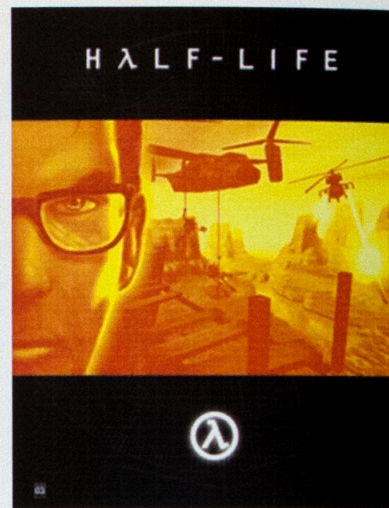
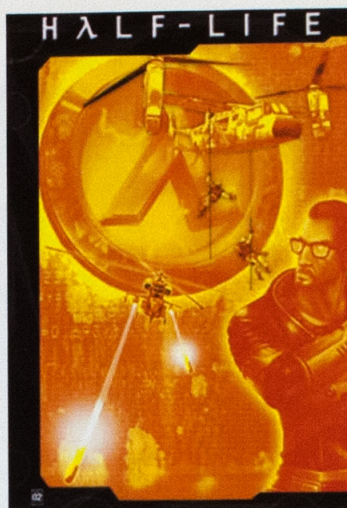
Early screens of the PlayStation2 game, revealed to the press for online distribution



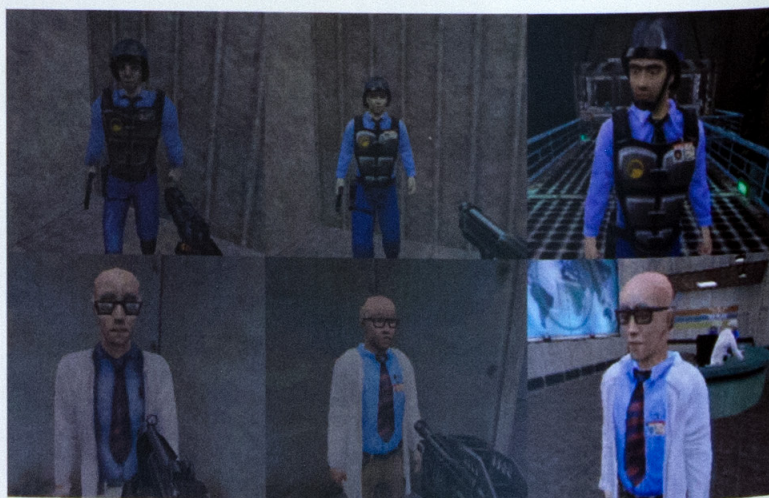
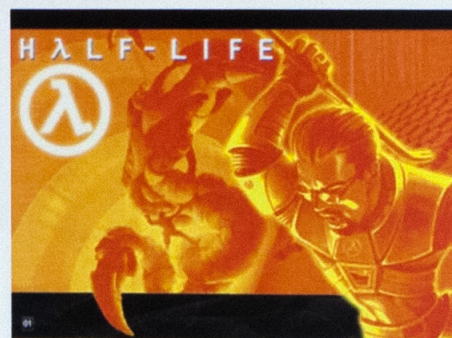
THE EYES HAVE IT: GAME ENHANCEMENTS

These Gearbox boffins also overhauled and enhanced the graphics, added all-new game modes (split-screen multiplayer) and bonus features (cheat codes such as a *Matrix*-like Xen gravity and a ranking system for *Decay*). But it was the characters that featured the biggest makeover, being “entirely rebuilt with about 3,000 polygons apiece and sporting more than twice the amount of articulation [than the HD Pack].”⁵⁹ Tiny facial details, such as eye-twitching, eyelid blinking, and facial manipulation were now possible (“Now when an alien starts to eat a scientist, you can really see the look of horror on [his] face!”⁶⁰ Randy stated proudly). Armaments and environments received increased detail (wall-mounted medical kits, for example, became functional with robotic arms and displays), lighting and shadows were enhanced, and Gearbox even threw in a 16:9 aspect ratio for a more cinematic experience, and easier “almost full screen” multiplayer. The jumping was tweaked (new interfaces for long jumps were added, and crouch-jumps were eliminated), a HUD lock-on targeting system was offered, and AI bots were implemented in the offline-only multiplayer game, as only two human players could run around the mixture of new and familiar maps. Even the keyboard and mouse peripherals could be used (or a Dual Shock and keyboard, or a Dual Shock and mouse).

The offering was the original *Half-Life* in all its re-textured, higher polygonal glory, along with *Decay*, a unique cooperative adventure only available to PlayStation2 owners. These were “special levels that Gearbox designed; and you were the woman [who appeared previously in] *Half-Life* deathmatch and the training room, Gina [Cross]. And some other mysterious person who was made up for that named Colette [Green].”⁶¹ Gina, in addition to being Gordon’s supposed wife, delivers a crystal sample to Freeman who’s working in an upper laboratory, again tying the plot knots together in an amusing weave. Helping the wheelchair-using Doctor Richard Keller (a new NPC) was just one of the *Decay* missions, and the game kept track of accuracy, sustained damage, and other statistics for each stage. Collect all “A” grades, and that “alien mode” is revealed.



Four posters, each appearing in a different gaming magazine, were used by Sierra's cunning marketing department to tempt fans into replacing their current bedroom/basement wall adornments just prior to game launch.



These screens show three years' worth of differences in graphical advancements. From left to right, the original graphics, the High-Def Pack, and the PlayStation2 game.



PLAYSTATION PRIMARY DIRECTIVES

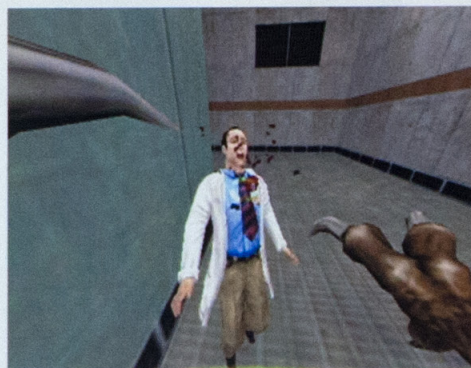
Randy neatly summarized his *raison d'être* in an interview with *IGNPS2*: "There are several design philosophies at play with the PS2 version of *Half-Life*. 1. Take advantage of the platform—use the features of the hardware to improve the experience. 2. Adapt the game design where appropriate to be suited to the interface of the PS2 system. 3. Create new content and gameplay options that are designed specifically for the platform (living room cooperative play, for example), and 4. Preserve the integrity of the original *Half-Life* narrative and plot."⁶² To this end, his team (which ranged from 5 to 18 members, depending on the development phase) worked furiously on the game, determined that this was one console port that wasn't going to fail.

Although some complained about the lack of online play, Randy informed the fans that Sony didn't have "connectivity options available to us early enough to implement them."⁶³ In keeping with other additions, *Decay* wasn't a lengthy addition, but was five hours well spent attempting to seal a rift between Earth and the alien invaders' home world, either alone (switching between the two good doctors), or facing the military in some memorable scenes where double-teaming the enemy led to whole new tactical strategies. Pitchford was so pleased with the finished product, he declared "the PS2 version features the best looking content of any previous version of the game."⁶⁴

The game was released almost a year to the day since the initial press release, on November 12, 2001, and received enthusiastic approval from the majority of the gaming press; some *GameSpy* hack noting it was "still some of the best fun you can have with a gun,"⁶⁵ while *GameSpot* agreed that "it's impossible to argue against *Half-Life*'s place among the most influential games of all time, and its transition to the PlayStation2 is a successful one."⁶⁶ Doug Lombardi looks back on the accomplishments the game made: "It was an interesting experiment. Co-op [play] is something that we're very interested in and hopefully one day we'll have time to do [with *Half-Life 2*]." Alas, PC owners wishing they could steer Gordon's better half and the red-suited Colette Green had better pray for an amateur mod-maker. "Yeah, we've never taken the time to bring that to the PC. It's on the list of things to do. But it never seems to make it to the top of the priority list."⁶⁷

Still, with the completion of a successful console port-over, the circle was now complete; *Half-Life* allowed the player to control Gordon Freeman, the antithesis of the pumped-up first-person shooter star. *Opposing Force* took players in the more predictable direction of filling the combat boots of a military grunt. *Blue Shift* told the story of Barney Calhoun's excellent adventure, *Decay* brought co-operative action and two female leads, and the alien slave swapped places with Freeman for a retelling of Gordon's story with claws instead of crowbars. Meanwhile, Valve and Sierra were adding further longevity to the *Half-Life* universe thanks to the power of repackaging....

Gina Cross (in light brown) and Colette Green (in red) double-team adversaries in *Decay*.



The PlayStation2 game's biggest secret was a reworking of the story starring an alien slave, with fishbowl vision and the ability to reach previously out-of-bounds areas. The G-Man isn't fazed.



Specially created art from the PlayStation2 manual gives the *Half-Life* characters a whole new cel-shaded look.



"The PS2 version features the best looking content of any previous version of the game."

CORE MELTDOWN: NO LIFE FOR APPLE MAC HALF-LIFE

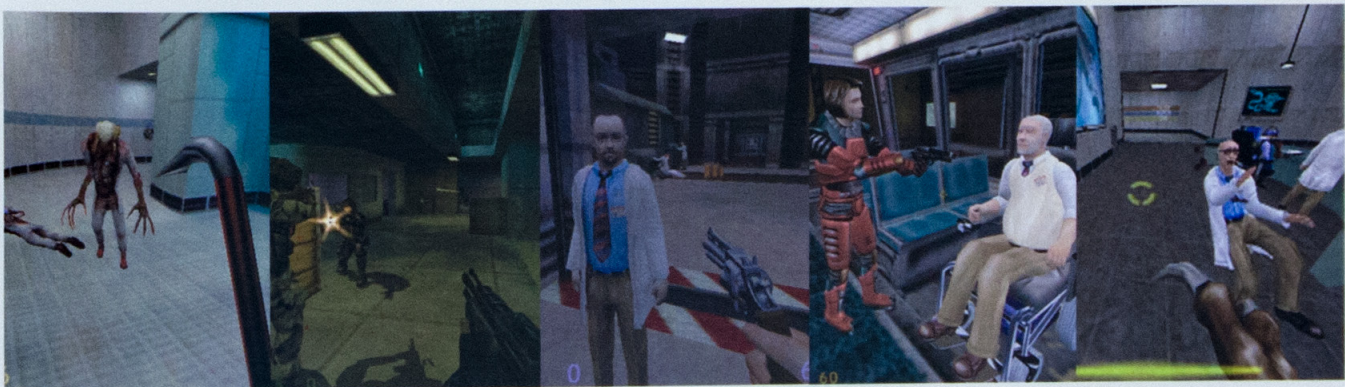
"Andrew Meggs at Logicware has been doing a good job on the port, and it's mostly done. At this point, we've spent a bunch of money on the Mac product and have spent a lot of time thinking about what we need to do to make Macintosh users happy with it when it ships. Which is why we are canceling the Macintosh version of *Half-Life*."68

—Gabe Newell, email to *Computer and Video games.com*, November 16, 1999

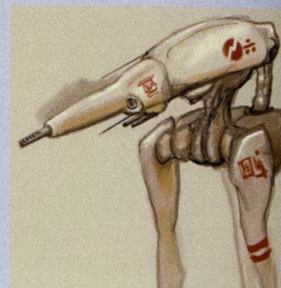
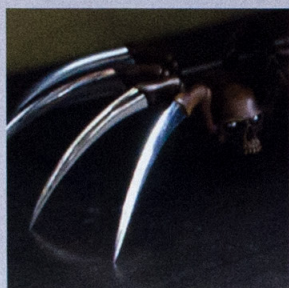
Sierra launched its *Half-Life* Macintosh website on August 7, 1999. Just over two months later, on October 19, the game was axed. What happened? According to Doug Lombardi, "not much." He embellishes further: "Some developers down in San Diego [Logicware] started working on it. [This was the year that] Steve Jobs stood up in Mac World and said Apple was committed to games, and they were going to spend all kinds of marketing money to get the awareness up. About halfway through production, it was pretty obvious to everybody that Apple wasn't going to do anything to really make that happen. Retailers were telling us, 'Mac *Half-Life*? That's nice; when's the next PC version that you have down the pipe gonna be ready?' So it basically died from a lack of true market viability." Although some die-hard Mac gamers wrote to Doug for the next three years pleading and threatening that the contrary was true. "You know what? I changed my e-mail. No, I'm kidding about that part."69

How far along was the game before the crowbar fell? Doug: "It wasn't ready to go, but you could play it through the first third or so of the game at a reasonable frame rate. If you had the G3 all loaded up and groovy, it was probably in the 15–20 frames per second [range]. And slightly buggy. No multiplayer version was ever up and running."70 The shockwave rocked the Mac community; the cancellation was still the "Fifth most shocking event that shook the Mac gaming world"71 in 2003, brought about internet petitions (Mike "dorkonaspork" Patton organized one still in existence that currently has 657 signers72), and insidemacgames.com even ran with an April Fool's joke in 2003 that they had picked up development of the game, with press-release comments such as "It runs great under Classic, and it looks fantastic!" raves Michael Phillips, managing editor of IMG. "You'd never guess that it's using [a] software [renderer]," and "Any of the LCD iMacs should run it just fine, with frame rates in the mid-teens," not to mention "*Half-Life* for the Mac is available for pre-order through the IMG Store for just \$159."73

But the original Mac port, even though a relatively impressive version of the game, required much more than a frame-rate boost; to break even financially, further shortcuts would have been needed. These included shipping the game without *TFC*, an auto-update facility, multiplayer compatibility, or support. Gabe Newell concludes, "It's disappointing to me on a personal basis that we [didn't] ship *Half-Life* for the Mac. Everyone here, and I'm sure the people at Logicware [were] disappointed. The Mac gamers who were looking forward to *Half-Life* [were] undoubtedly disappointed, as well. However, that's a lot less disappointment than what would have happened if we had tried to get Mac gamers to accept second-class treatment on an on-going basis."74



The Black Mesa mishap, from all perspectives: Left to right, Gordon in the original game, Adrian in *Opposing Force*, Barney in *Blue Shift*, Gina in *Decay*, and the alien slave in an extraterrestrial retelling.



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Investigation 3: An Enduring Evolution

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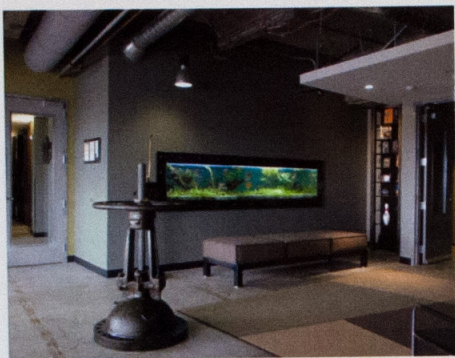
In which a peer inside Valve's unique working practices and environments gives way to a tour inside, behind, and through the creation of a game sequel, Half-Life 2. Evidence is presented regarding the inspiration for the environments, weapons, and characters. An overview of the many levels of construction is shown, with numerous examples of design, art, and attention to detail. The game's numerous delays are covered, as is the nefarious theft of the Source Code. Final lessons are learned as Valve's main project for the last six years is brought into final focus.



Industrial Strength:
Behind the Scenes
at Valve Software

.12

“We don’t have titles, we have responsibilities.” —Ken Birdwell



Valve's entrance foyer, including a close inspection of the valve itself

PART 1: COMPREHENDING THE CABAL

WITH KEN BIRDWELL¹

"We don't have titles, we have responsibilities." Ken is quick to point out that the titles you see after every Valve employee, both in this book and on Valve's website (www.valvesoftware.com), are only for guidance purposes. There are no grandiose titles on business cards or on office doors. If someone needs naming, Gabe comes up with it. However, this isn't complete anarchy; Ken Birdwell has been guiding the project called *Half-Life 2* since its inception, the second after *Half-Life* shipped.

"I'm one of the original Valve people and have been here since we started, one of the first four employees. I worked with Gabe at Microsoft beforehand. He left Microsoft because we kept talking about games all the time."

At this point, it's worth mentioning that Valve's development practices, at least at the inception of what came to be known as "Cabals," have been described in detail by Ken Birdwell in December 1999, a month after *Half-Life* shipped.² It turned "our initial, less-than-impressive version of *Half-Life* into a groundbreaking success." In the article, Ken touched on the reasons why the original game was shelved ("it wasn't any fun"), and explained the embryonic beginnings of the Cabal: "We set up a small group of people to take every silly idea, every cool trick, everything interesting thing that existed in any kind of working state somewhere in the game, and placed them into a prototype level." The results this time were more than fun; they were "*Die Hard* meets *Evil Dead*. All we needed to do was to create about 100 more levels that were just as fun."

As the Cabal idea formed, Valve came up with theories. The first was that "the player never had to wait too long before the next stimulus." The second: "All content is distance-based, not time-based" (the player chooses when to advance into further confrontation). The third: "The game world must acknowledge players every time they perform an action" (from bullet decals on walls to scientists reacting to you). The fourth? "Players should always blame themselves for failure." Unfair deaths by unseen hands is kept to a minimum.

With these tenets of game design set in stone, a 200-page document was distributed "that detailed all the levels and described major monster interactions, special effects, plot devices, and design standards." This occurred through a series of Cabal powwows where egos were surprisingly suppressed, and the team was energized by the collaborations. After the document was complete, the second month saw levels develop, and the third brought in outside playtesters. These guys knew nothing about the game (and indeed, some knew little about games at all). "Nothing is quite so humbling as being forced to watch in silence as some poor playtester stumbles around your level for 20 minutes, unable to figure out the 'obvious' answer that you now realize is completely arbitrary and impossible," Ken remembers. Personal opinions fell by the wayside. The Cabal collective had taken over.

With the playtesters constantly questioning the game design, programs were written to record the players' positions, health, weapons, time, and any activities (saving, dying, loading, solving a puzzle, being wounded, fighting). Graphs were plotted from this data, and overall problems were spotted, such as "areas where the player spent too long without encounters, or too long with too much or little health." Design elements were shifted or implemented based on these recordings. This had the effect of stopping people's "pet" projects that they thought were great, but everyone else wasn't so sure about. The final result was *Half-Life*—a world away from the "mediocre at best" first attempt.

Now that five years have passed since the implementation of the Cabal practice, Ken Birdwell sits down to chat about how working at Valve has evolved.

"Everything in that piece is pretty much the chronology. I cleaned up for the article. It was a lot messier than that in real life, of course, but basically everything that was in that was pretty accurate."

Ken Birdwell didn't come to the company with a Cabalistic set of ideals. Valve was open to other game development plans: "We kept looking for the 'auteur theory,' the one guy to come and do everything, the super-visionary who makes you his bitch."

"We met these people who wanted to do it. We interviewed them and said, 'We have better ideas than you; go away.'"

"Or, 'I just don't want to do it.' I'm a pretty senior guy and there was really no way I was going to listen to somebody tell me what to do. So screw you. We had a whole bunch of people like that who were pretty..."

Full of themselves?

"No, it's different than that. You can be full of yourself, but if you don't respect the people you work with, then you're completely f***ing useless."

Valve tends not to hire completely f***ing useless people. Who does it hire?



"What I want are people who know they're really good, know they're really smart, and know the people they work with are really good and really smart. That is totally a different thing. That is the company that I wanted to form when we started Valve." The discussions began soon after Valve's foundation.

"What were we going to be? One of the goals was that we were going to hire people that we respected, and that we hired them because we thought, 'I know this guy; in many ways he is smarter than I am. That's why I'm hiring him. I'm not going to hire somebody who I don't think can do their job as well as I can do mine.'"

There are two rules: "#1: I know my job; don't tell me how to do my job. #2: You need to do yours." How does one manage such a group? "You can't ever have one person come in and suddenly pretend they are in charge, because all these other people who are way better at their jobs than that person is are going to say, 'How can you possibly tell me what it is I am supposed to do?'"

The first plan; clusters of five or ten people,"each one of them an expert." The second plan: The Cabal.

Not the dictionary definition of the Cabal, you understand.

A conspiratorial group of plotters or intriguers: "Espionage is quite precisely it—a cabal of powerful men, working secretly."

Well, maybe the second bit. But without the negative connotations.

"We get everyone from disciplines that are going to be required to do the work. The workers should control the music production, and the whole socialist ideal...."

Ken laughs. "No, I didn't want to do a dictate from management, or dictate from committee; we actually talked to people who were going to do the work. The guys were going to write the AI, the people were going to actually make the levels, animators were going to make the models; those are the people that sat in the room, and went through it all and discussed it and came up with the game."

Nowadays, it's a lot easier to be a critic. "Do you want to say what you don't like about *Half-Life*? Then you have to say how you would change it, what work you would do, not work somebody else would do. You can always tell somebody you need to work harder, but it's really hard when you come into these meetings and you realize, 'No, it's the work you will do.'" Focus is the key.

"This clarifies the issues. You'll throw stuff out, but at some point at the end of the day, you know that the things you decided in that meeting will directly impact what you're going to be doing in the next weeks, months, or years."

Ken hasn't seen this organization appear anywhere else.

"But that's primarily because I've never really worked at a place where I had total control of who worked there. I'd always been hired at a company that already existed, or I didn't really have enough influence to hire people at the company, and it hadn't been until Valve where that really started happening, where everyone was just involved."

Foyer accoutrements, including award shelves, and copies of Valve's games released in foreign lands

There's a veil of secrecy. The team is reluctant to say anything to anyone. Are you a cult?

"No, although there are probably many similar parallels!" Ken chuckles. "We typically agree because we all live through it—the difference between that and a cult is that our leader doesn't give us speeches every day. There is no mythical dalai lama who lives in Gabe's office...." He's not forcing you to wear sneakers?

"No, we don't have to wear sneakers and drink certain special-flavored Kool-Aid, or go through daily cleansing rituals. But our principles do form a really tight community. This allows us to really learn a new way of communicating about the game, about art, and about what we want to do and where we want to go." It is sometimes difficult for outsiders.

"People come in, which we hire, who are very smart, and it still takes them several months to get up to speed as to how we talk about stuff, what words we use, how to phrase things."

Mod makers. They've been through a similar experience, though. They must easily adjust.

"Well, actually, mod makers have it hard. The worst ones are the folks who have done it completely on their own. The guys who just do maps. It's a serious culture shock. It isn't that they aren't incredibly talented, but it's primarily a cultural thing. 'Can you interface correctly?' Folks who are very used to being a lone wolf, doing everything themselves, having everything firm, everything in stone, and then just building on top of that, those people have a really hard time at Valve because things are constantly in flux, or changing." And other people are messing with your maps.

"People are always messing with your maps. But if you aren't comfortable with your map, how can you mess with my map? Don't get me wrong, everyone has distinctive marks in the game from different folks, but these maps are so sophisticated and there are so many elements that go into them, that you can't do the lone wolf, one-guy-does-everything any more. It's impossible." Stay a while. Stay forever:



The infamous headcrab, still more or less intact after a vicious crowbar attack in November 1998, and one of Gabe's robot spider models

Naut, a nautilus in a giant vertical fish tank near Valve's kitchen area (although the specimen itself is not for eating) is the company's mascot.



Valve's main conference room. This is where the important meetings occur, and all the fan art is kept and displayed. The *TFC* mini-gun on the table is a gift from a Swedish fan. It's around 100 lbs in weight.



"We have very little turnover, we have sometimes gone an entire year without losing anybody. Most folks we lose have their spouse move out of town, or for some other reason it doesn't work out. Or you want to work a different kind of game; that's pretty common. Or the weather starts to get to you. We've lost a few people to weather."

"This summer's been gorgeous, but we had one Seattle summer where in six months, there were maybe three weeks of sun."

So you are going to go through the practice of getting rid of all your programmers after the game ships?

"Actually, that is an interesting discussion. We've talked about those elements; in that movies do that explicitly. When you work on a movie, at the end of the movie by definition, everyone is fired. Now many companies are starting to employ the movie method." There's a difference between movie and game companies.

"The reason why people who work on movies make a lot of money—even the caterers—is because there are long periods of time where they don't work. When they show up, everyone just does their job really intently for six months and then goes away for long periods of time. That's a valid method for doing games, but it's weird for engineering." I want a job at Valve, please.

"You need to stand out somehow. You need to do one thing really well. You need to be an expert at something. You need to be very creative." I'll get my coat.

"If you are a young guy without a lot of experience, you need to be very enthusiastic, you need to have a lot of great ideas, you need to know how to do something really well."

What about the older, slightly crustier members of the gaming community?

"If you are an older guy, you need to have shown that you can ship product, you need to know how to plan, and you also need to be a master of your craft. If not just one craft mastery, then talent, or at least experience in other crafts. I interface a lot with the animators and the artists, even as a programmer. Part of the reason was that I went and got a degree in fine arts. As a programmer, I was doing graphics. I thought to myself, 'OK, I can program as well as I will ever be able to program, and I can program as well as people with that background. I am an expert in my field. So now what do I do?' The answer was to do graphics."

The overall career goal at Valve is to become a jack of all trades. And a master of at least a few of them.



PART 2: OFFICE SPACE

WITH DOUG LOMBARDI²

Stepping into Valve's offices is a trip. Camouflaged on the ninth and tenth floors of a large skyscraper in downtown Bellevue, east of Seattle, Valve's office space isn't easy to find. It does however, offer a pleasing juxtaposition to the marble-filled foyer, exclusive emporium shopping, and a number of more straight-laced companies that share the building. When you've spun through the stainless steel revolving doors, slid across the freshly polished floor, and received your security keycard to Valve's tenth level reception area, you'd be expecting a state-of-the-art, but slightly soul-less office space. You wouldn't expect the concrete, headcrabs, cement, exposed piping, slab-like pillars, bell-jars containing specimens, and giant half-ton ship's valve waiting to greet you. Let's tour Valve's Bellevue headquarters, near Seattle, Washington.

You're greeted with an impressively frugal reception area. The floor is varnished concrete with the glue stains from the ripped-up carpet still visible. Corrugated metal sheets flank each wall. Giant cement struts propel vertically up from floor to ceiling. There's a gigantic ottoman to the right, and an equally gargantuan fish tank above it. At either side of the double entrance doors are some of Valve's awards. There's a CNET bowling pin. There's a Taiwanese copy of Prima's *Half-Life* guide. There's a large golden crowbar trophy with an etching from Sierra thanking them for "Raising the Bar."

The floor-to-ceiling window bank looks out onto Puget Sound. Above, there's no ceiling; just exposed air-conditioning pipes and metal cables writhing against each other. A headcrab piñata, the remnants of Valve's first wrap party, peers down from an upper ledge. Welcome to Valve.

Doug tells us why Valve moved here from their Kirkland space.

"That was a third of the second floor of an office mostly filled with accountants. It was a very stagnant environment in a cool neighborhood in Kirkland. Originally it was meant to fit 16–18 people. They were doubled-up and crammed into that space around the time *Half-Life* shipped. Valve was up to about 20–21 people, plus the part-timers coming in to test. Shortly after the game shipped, the people on the rest of that floor moved out. So we took over that floor. Then we quickly filled up that floor. Then the people on one-half of floor one moved out, so we took over that and the Steam guys started getting hired, and we filled up that floor, and we started doubling up on offices again, and we went upstairs to talk to the accountants who owned the building." Valve had a simple request:

"Can we get rid of the people that have the rest of floor one, because we're growing?"

They responded with, "We're about to do a bunch of hiring and expanding as well, and we were going to ask you if you could get out, because we want floor two back."

"OK, well, we've got a contract, what do you want to do here?"

At the time, and still now to some extent, this downtown Bellevue area got hit pretty hard by the dot.com crash.

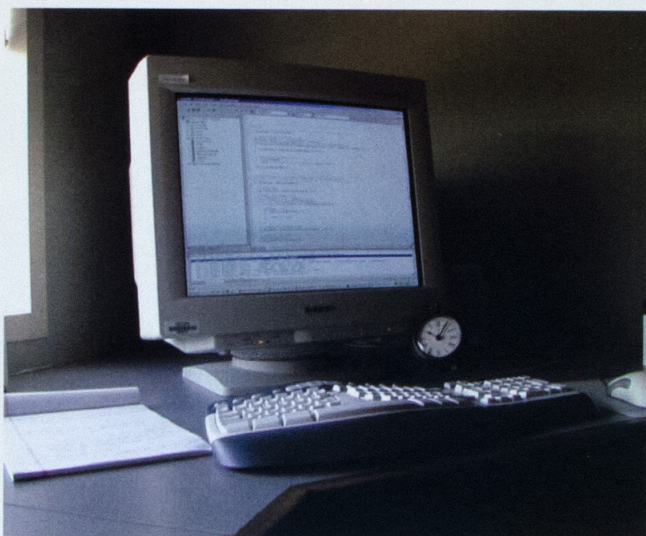
Gabe checked the area after a tip from Scott Lynch, Valve's VP of finance and the face of Barney in *Half-Life 2*. He found the current office space.

"This facility was an abandoned Microsoft call center."

"Not only did the accountants release us from the multi-year lease, but they gave some incentives to help us move and get us out quickly."



Corridors and withdrawing room areas. Notice Ted Bachman's bell jar, with one of his clay monster creations inside.



"At the time, we were being offered every killer space for peanuts. There was a 33 percent vacancy rate in Bellevue. You couldn't give away space."

The building space, part of a large high-rise equidistant between downtown and the east side—perfect for the team when they remember to leave the office.

Being a Microsoft call center shell, it needed some design flourishes.

"It was gray carpet and cubicles everywhere. So the first move was just to bulldoze everything and clear everything out. We hired a design squad; they talked us into pulling up the carpet and leaving it exposed. We showed them our games; we showed them some of our corporate collateral. Leaving the stuff exposed and using muted colors all seemed to make sense."

"We don't like cubicles, we think that's kind of demeaning to people. We wanted to have lots of meeting spaces, for any room you're in."

In the middle of the entrance foyer, near the ever-watchful headcrab, is Valve's valve. "The valve was a gift from Gabe's brother.

"It was off a vessel that was docked in a port in Seattle where Gabe's brother retired. Gabe and his brother lived around this area forever. Both are old Microsoft guys, and with their dad being an Air Force guy, they have a lot of strange industrial connections here in the area."

The handle also rotates up and down at an alarming rate, and if rotated at a fast enough speed, emits an incredibly loud grinding sound that frightens visitors. It must weigh around 400–500 lbs.

"I'm sure. Gabe and I have both sat there and tried to rock it, like obnoxious kids, and the thing won't move." It seems Valve is here to stay.

The DoD militarized zone, Valve's kitchens, Jess Cliffe's office, and a sample computer terminal



Destination City 17:
Head East, Freeman

.13

“The goal...was that it simply had to be the best PC game of all time.”
—Gabe Newell

►► THE SLIDESHOW: BRIEFING BY DOCTOR ELI VANCE

"In an early spec, Eli subjected the player [Gordon Freeman] to a slideshow that served to give some insight into the time intervening between *HL1* and *HL2*. While this is an unworkably clunky way of giving exposition and I was happy to lose it, it does spell out some of the historical background for *HL2*."¹

* Eli powers up the slide projector. A white image flashes on the wall of his room, where he has hung a white sheet.

ELI

Let's see now...where does this start?

The following images appear as he speaks:

- * Aerial view of Black Mesa
- * Inbound train
- * Test Chamber

ELI

Black Mesa. Let's not dwell on that. Nobody's blaming you. We all have to accept some responsibility...what matters is what we do next. I'll get to that. After the disaster, well...let's just say, the ripples kept spreading.

The next few scenes have the feel of Norman Rockwell in Hell:

- * Headcrabs leaping onto shoppers from supermarket shelves
- * Bullsquid chasing a family from a suburban house; pack of houndeyes roaming down Elm Street
- * Gargantua overturning a tractor as a farmer flees across a Nebraska field
- * Ichthyosaur materializing in a public pool, right under a nose-pinching kid who just jumped off the high-dive

ELI

The countryside, the suburbs, all those hard-to-patrol places, got pretty much uninhabitable. People started crowding into the cities for protection.

- * People clustered at a cyclone fence topped with razor wire, city skyline rising behind them; cops stand tensely on guard towers, blasting away at headcrab zombies outside the perimeter.

ELI

There was an illusion of safety, for a time. And then the Citadels appeared. It happened in a split second, all over the world. A chunk would disappear from the center of a city, to be replaced an instant later by one of these...headquarters for the Combine. Invasion Central.

- * City-center completely cored, buildings sheared off, an enormous pit appearing out of nowhere, and people falling into it
- * The same view, with a Citadel now towering at the center of all

ELI

Say hello to your new masters.

- * Cremators, striders, Combine machines pouring out of the Citadel into the city. Combine dropships tearing through the air.

ELI

Oh, we resisted.

- * Tanks, soldiers, human army advancing on the Citadel
- * The same troops reduced to ashes, completely obliterated

ELI

Earth put up a fight that lasted all of seven hours.

- * A smoldering Pentagon-shaped pile of ashes

ELI

And then, one man who had seized about all the power a man can seize in a crisis, used that power to arrange our surrender.

- * The Consul, at the foot of the Radio Tower, wearing a headset, hands raised high to the dropships as he proclaims Earth's surrender

ELI

They call him the Consul now. It worked out fine for him. He speaks for the Combine; he shares in their power. As for the rest of us....

- * Views of City 17, citizens slouching along
- * Air Exchange belching black fumes
- * Drained seabed with beached ships, whale bones

ELI

Well, you've seen the state of things. They're replacing the air with something we can hardly breathe. They're draining the ocean. We don't know if they're preparing the planet for new residents, or just stripping it of every possible resource. All we do know is that we have to stop them. And that's where you come in, Mr. Freeman. It's up to you to....

- * The projector goes dark.²

—The Half-Life 2 pre-production slideshow,
written by Marc Laidlaw



An early concept sketch of Doctor Eli Vance and Dog.

NEWELL WORLD ORDER

Back in about 1993, Gabe Newell saw *Doom* for the first time: "It seemed to me that there were two really interesting things there. One was it really showed that PCs could be a great platform for entertainment and a lot of people didn't seem to understand that. I certainly had my eyes opened by playing *Doom* and going, 'This is incredibly cool.' The other thing that it seemed to show was that the traditional retail packaged goods model for distributing or for selling, marketing, and distributing software was going to be replaced over time by something else.

"So here was this small company of 12 people at the time in Mesquite, Texas, and yet somehow they had managed to get themselves onto 30 million desktops at a point in time when Microsoft's Windows was only on 27 million desktops. That was super interesting because it seemed to mean that the relative balance between various other business functions and product development could change, but the most important thing was to have a great piece of software. There wasn't really an internet as a consumer phenomenon, so it was using primarily bulletin boards to get distributed, and people just doing word of mouth—but even that kind of approach could be more effective than Microsoft's, who had invested tremendous amounts of money in channel development, and had a huge retail sales force, and all of these other groups that were still being out-distributed by this little tiny company."³

Half-Life, its subsequent expansions, and hundreds of modifications had taken this embryonic marketing style, and nurtured it. "With *Half-Life 1*," Gabe Newell says, "we proved we could do the entertainment part of it, so what are we going to try to do with *Half-Life 2*? The goal, when we were talking among ourselves, which is different than how you publicly talk about stuff, was that it simply had to be the best PC game of all time. And the reason that you talk about it in those terms is people on the team need to know that you're serious about that. Those aren't just sort of made-up words...it's not a marketing slogan, it's what we actually need to achieve." >>

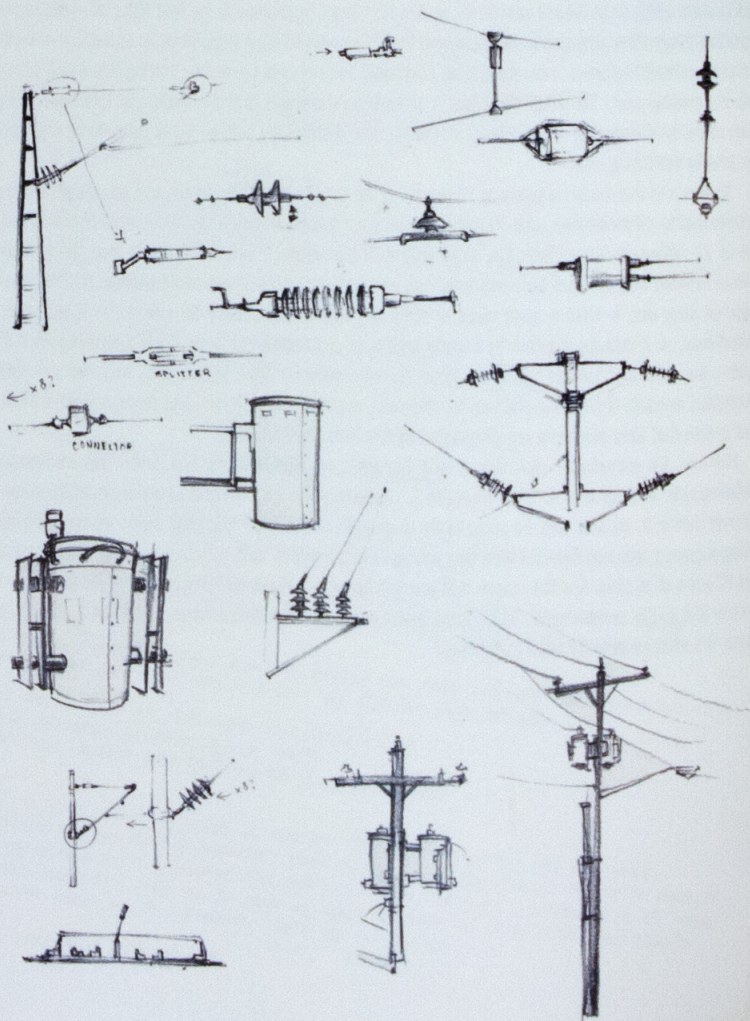


Design elements for Combine propaganda posters in City 17

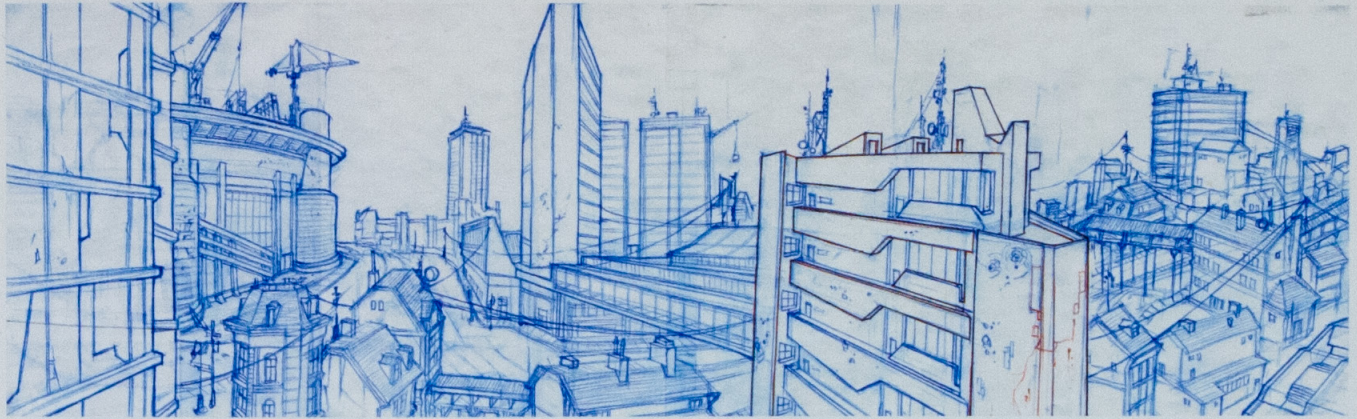
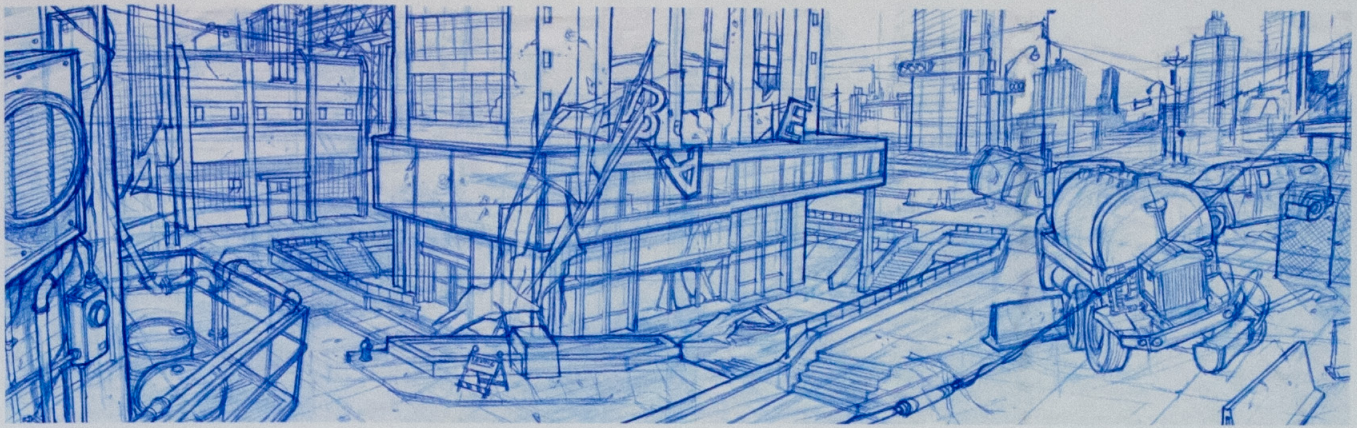
The teams immediately began to talk, in Cabal discussion groups, about the major impediments that needed to be overcome. "They pushed back, and said, 'Well, it could take this long...' or, 'Boy, there's a set of technical problems that we're going to have to try to solve, and some of them we're going to fail at. So, if you're really serious about that, then you have to accept the fact that we're going to waste some money on some things that don't pan out, and hopefully have enough things that do pan out to offset the things that we fail on.' That was our mindset early on going into *Half-Life 2*. *Half-Life* had shipped, and we were getting all this support, all these sales, and what could we do with that?"⁴

The very first offering Valve completed was the *Uplink* demo game in early 1999, a couple of months after *Half-Life* shipped. Although partly the impetus for *Half-Life 2*, the game was more of a way for specific teams and individuals to work on single, smaller projects. And use up extra script already recorded. According to Gabe, "That was more like Kelly Bailey, senior game designer and musician, driving this process of creating *Uplink* and sorting through people's roles more than anything else. It was certainly in line with developing *Half-Life 2*, but it didn't really set the tone for what we were trying to achieve."

Valve was waiting for technology to catch up to their imagination. "If we were going to try to do this big leap forward, we were trying to figure out what that would entail. What would it require from the graphics side? What would it require from AI? What would it require from other kinds of systems?"⁵ One of the major improvements Valve wanted to see was in the field of interactive and believable physics, an aspect of game design that was left in tatters after the release of *Trespasser*. >>

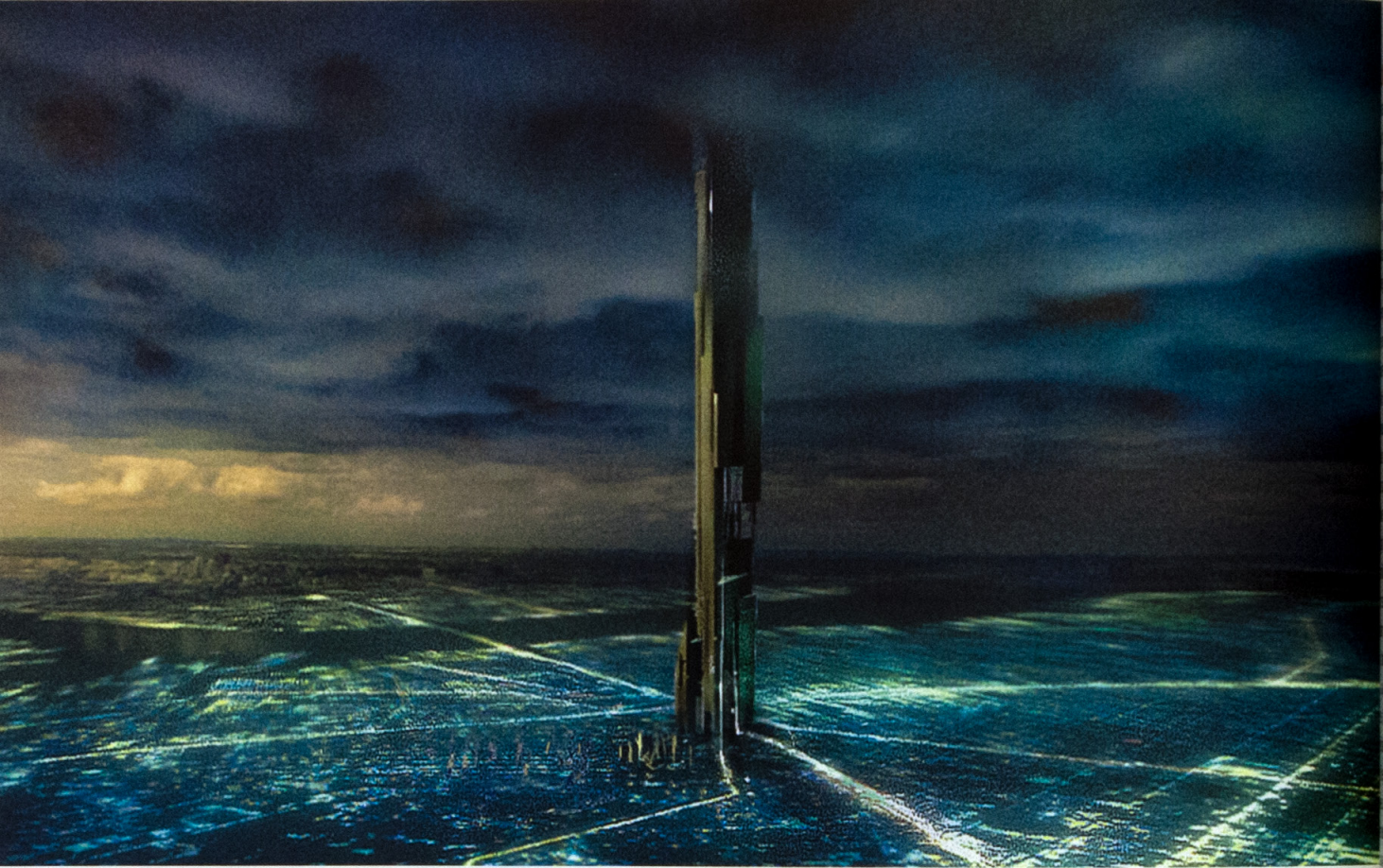


Design sketches for City 17 utilities

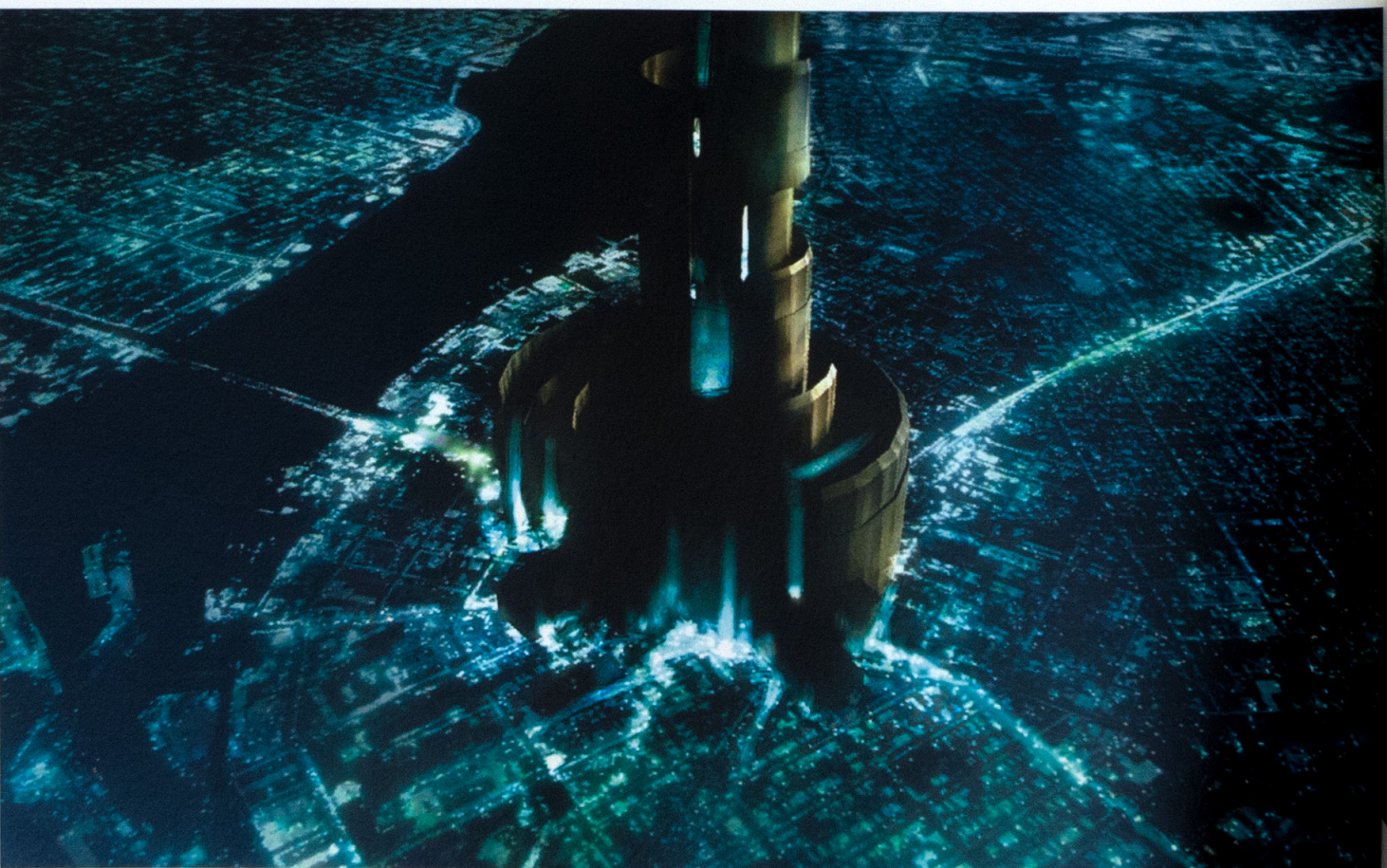


Early design sketches for City 17





Concepts of the Combine Citadel looking down on City 17



FLOUNDERING WITH PHYSICS

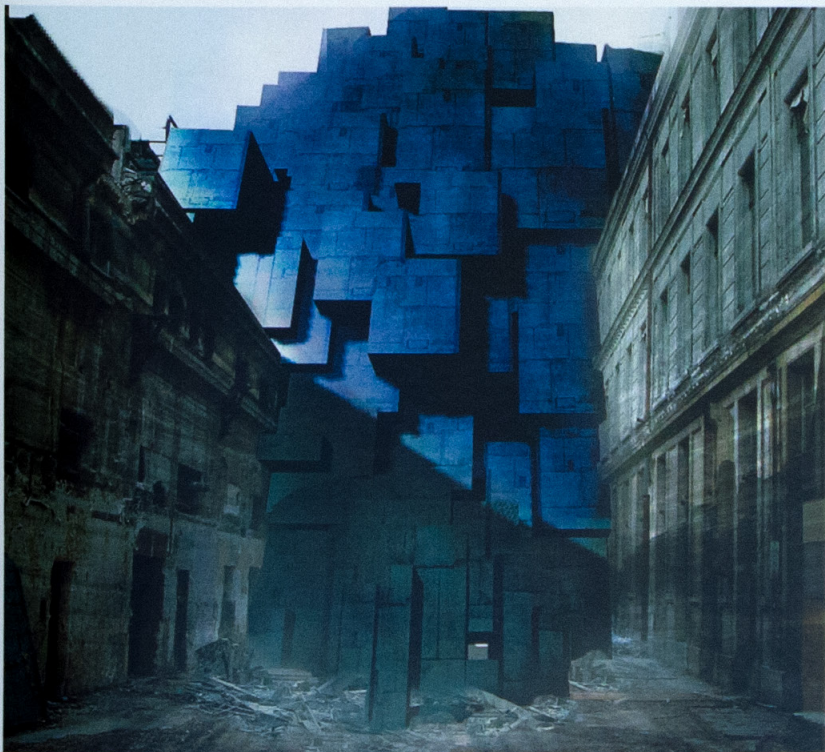
Gabe already saw the troubling aspects of the game: “Yeah, physics at that time had a super bad name because of the failure of *Trespasser*. I mean, *Trespasser* had done a really good job of making people not even want to bring up the word ‘physics’ in game design discussions. There had been all of this hyperbole about ‘emergent gameplay’ and all this stuff, but when you played *Trespasser*, it just wasn’t there, you know. It was a technology demo in search of a game, which is a terrifying thing, because you can spend a huge amount of time and money building one of those and have very poor sales, which is what ended up happening with *Trespasser*.”⁶

Seeing the potential nightmare in creating a physics engine that failed to deliver a realistic experience was an enormous fear in Valve’s earliest discussions. The thought process began in 1999, and continued to flounder well into 2000.

“We’d be sitting around, talking about how incredibly important it was to build physics into our game, that it would give the opportunity for a bunch of interesting kinds of gameplay, but nobody could point to a particular example of, say, two minutes of gameplay, being really fun *because* we added physics, but boy, we were sure that there were going to be opportunities. That was pretty scary.” That was, as Gabe states, until Valve hedged its bets.

“It got put into the category of one of the more speculative bets. We thought that, even though the one high-profile test of the physics thesis had failed, we still felt that it gave a granularity to the gameplay, because stuff was moving out of cases of ‘if this, then’ kinds of things and into more granularity. It’s not a question of yes or no, it’s a question of how hard you push, or how much force there is or how much friction, that improved granularity would fundamentally make the world feel more responsive and open up a wider range of things to react to the player. That was, to our minds, always really the fundamental appeal of games, that the world is reacting to you and the choices that you’re making.”⁷

The floundering continued. It was beginning to have a domino effect on the work being attempted by other teams. The project was grinding to a sluggish and muddy halt. Gabe again: “We had a whole bunch of people who were solving hard problems on the technology side, and a whole bunch of other people who were trying to figure out what the game was going to be, but without those technology questions answered, and without those people being able to participate.” >>



The Combine wall, known as “deconstructor” in this design sample





Ominously, this wasn't turning out to be the best PC game of all time; this wasn't even a game, and it was taking too much time. "There was a fair amount of spinning of wheels in terms of... 'Well, we can go in this direction or this direction,' and the people who could really answer the questions were like, 'Well, I'm still trying to get the shaders up and running,' so the people on the concept side tended to have to iterate a lot, because there was no real way of deciding whether or not the particular direction they were going in was going to work."

Looking back, this was the single biggest lesson (and mistake) of *Half-Life 2*'s development. "You're always going to learn lessons, but with *Half-Life 2*, essentially we were trying to solve production problems when we were still in pre-production, which meant that they couldn't get a lot done, and it was also really frustrating. It's like you're trying to create an art direction when you still don't know what your polygon budgets are going to be, and you're still a year away from knowing exactly what sort of performance you can achieve in an area that's going to be critical to a set of artistic choices that you're going to make. So, there was a fair amount of thrashing, including the slideshow, which was trying to talk to some of these issues."⁸ The exact results of Valve's expedition into the world of physics is detailed in a later chapter. >>

Combine Soldiers patrol as the Combine slowly destroy an old tenement block.



THE G-MANCHURIAN CANDIDATE

The slideshow. This was Marc Laidlaw's initial endeavor at making a segue from the end of *Half-Life* into a living, breathing, and totally terrifying world, both for Gordon Freeman and Valve staffers themselves. With an oppressive looming force gradually dismantling civilization, there needed to be some way to turn this apocalyptic future, and compress it down into a more cohesive single-player game. Gabe remembers that "a lot of that fine-tuning grew out of Jay Stelly [senior software development engineer] bringing a pragmatism to some of the production issues. There was something going on both in the process of developing the product that was also impacting some of the content of the decisions that we were making. How do we explain that, how do we capture it?"⁹

The answers lay in two more years of planning and preparation, and more than 1,000 pages of specs. "Easily 1,000 pages." Marc confirms, "These were scenes and scripts that never quite worked, and entire cosmologies and cosmic conflicts that we pursued for a long time while we narrowed it down to the story that ended up being *HL2*. Some of this stuff may well end up being resurrected for future games. We created worlds and stories enough for several games as we honed in on this one, but many of the elements of those early scripts survived into the present version, in mutant forms."¹⁰

Marc Laidlaw knew that the story needed to progress at the very beginning of development, and head on from the ending where Gordon Freeman joined forces with the G-Man, instead of the other ending or a separate direction entirely. "We had to come up with an extrapolated cosmology, 'What was going on before Black Mesa; what was suggested there about the universe; were there more aliens coming into it?' There was a real need to do that, and it progressed pretty slowly. At the same time, we were taking these paper cards full of settings into meetings. 'OK, what kind of universe do we need it to be?' When it's all on paper, all the ideas seem equally 'cool' or 'foreboding.'"

The story began to evolve over a particularly long time. "We were starting to evolve the technical specs, and thought, 'These are technical features that we should leave on in the next game, here are some challenges we'd like to set for ourselves, here is where we want to go with drama.' It was a really conscious decision to push the acting, the characters, and the drama to the next level. A lot of people felt one of the best things we did in *Half-Life* was the before and after Black Mesa. Black Mesa labs is alive when you get there, because it's this world that's just purring along like clockwork." Black Mesa allowed a sense of being inside a 'real' setting. "And we really regretted we didn't have more of those in *Half-Life*."¹¹

The ante was upped, as Marc describes it: "We decided to have at least three of these Black Mesa-style areas of character interaction. We have something in the beginning, then there's the action-action-action, and then another plateau, where you're back with your friends, it's more about characters and the setting and this world and exploring this place you're in, and then more action-action-action. And then another of these set pieces. We thought we could hang a game on three of these big structural set pieces and be pretty solid."

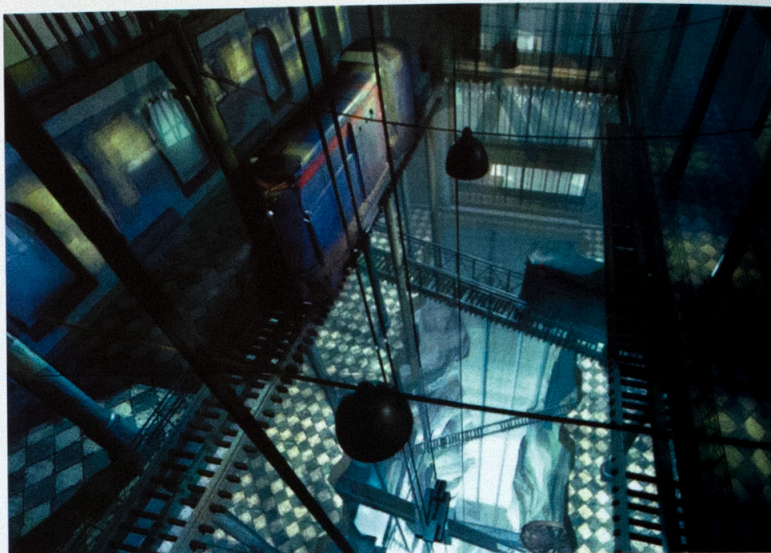
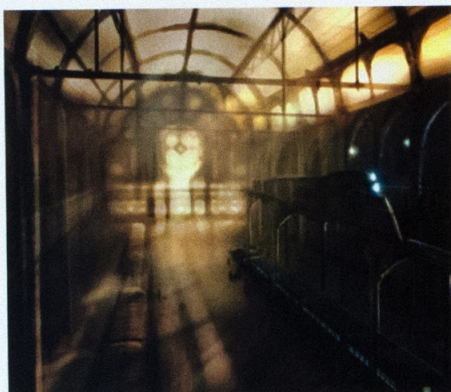
The second of the two initial design factors was a sense of circularity. "We wanted the end of the game to feed directly into the beginning. For example, if there had been time in the development of *Half-Life* to fix it somehow, you should have seen the Nihilanth [the final alien boss] twice before you get to the end of the game. We should have made sure there was something coming about Xen, and you're trained in jumping puzzles before you get there!" Marc grins: "So it didn't feel like it was laid on with a trowel. So, those were conscious things like, 'Let's do something circular,' where you can see the end of the game from the beginning and create this unity so that you don't have anything at the end that you don't have a relationship with already."¹² >>

Jess wants art here. I think it's fine as is with the strong art piece on the facing page.

Input from David?

I have no idea if we even have any more art for this section.

Various iterations of City 17's Train Station, and a screen of how it looks in the final game





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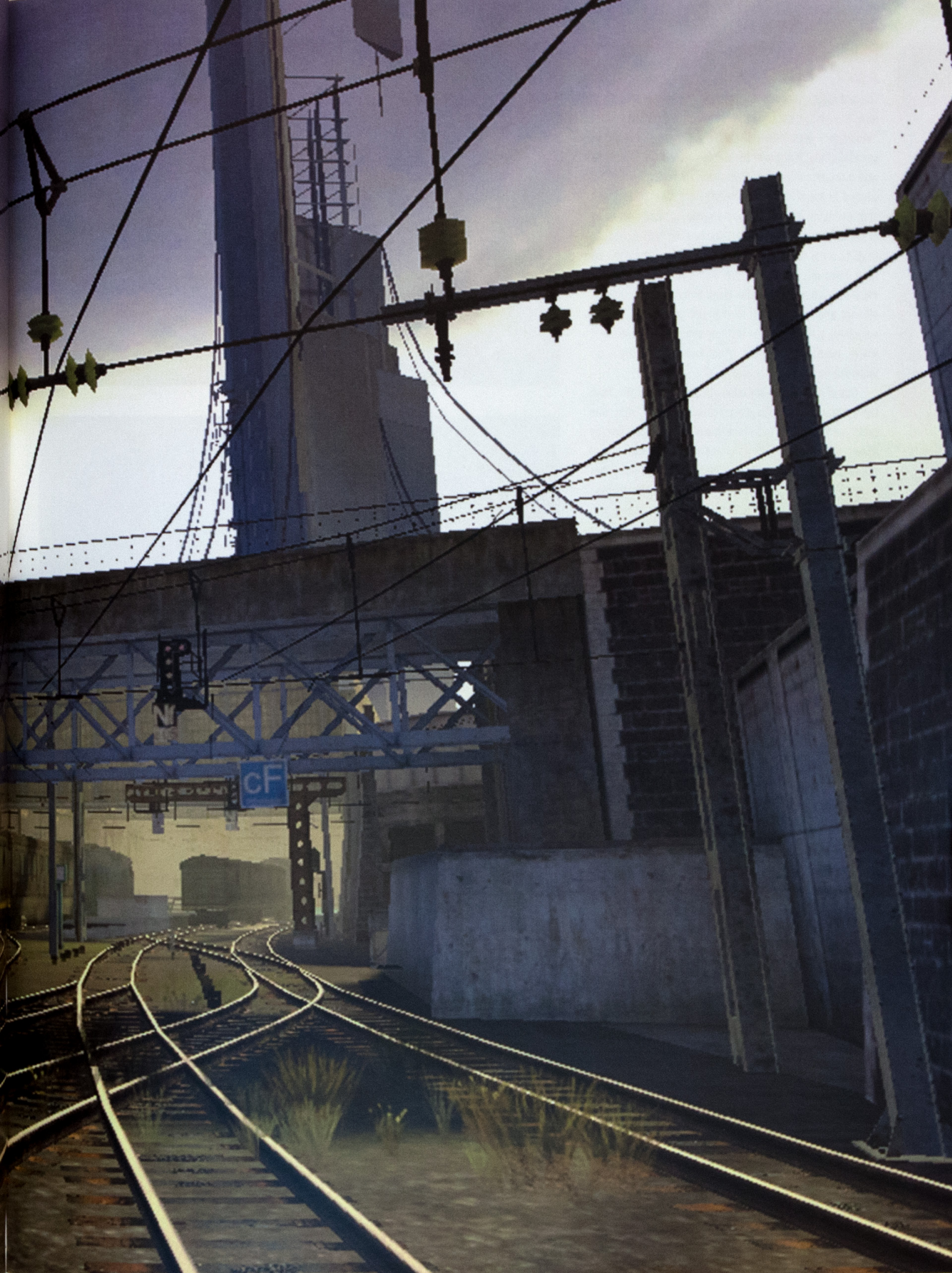
Destination City 17: Head East, Freeman



HALF-LIFE 2. RAISING THE BAR

201





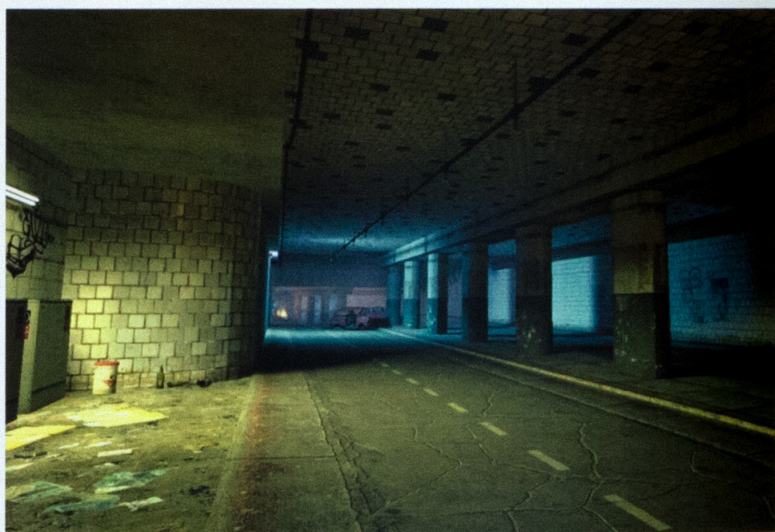
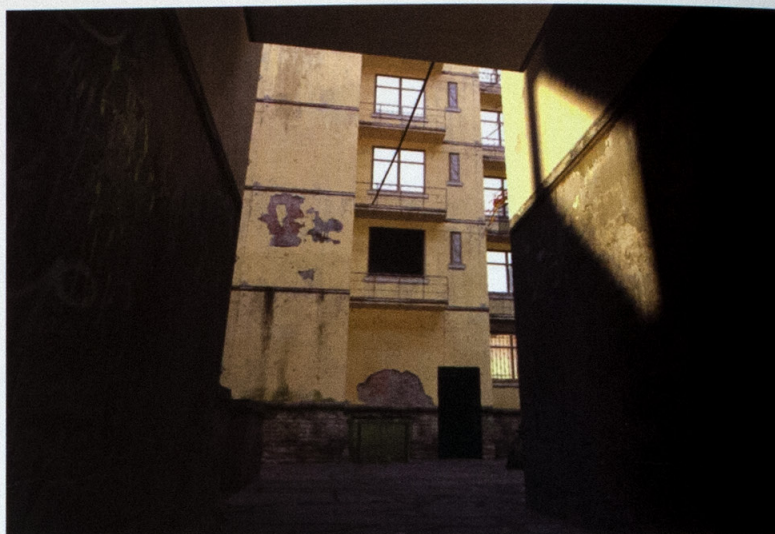
GORDONED OFF: ABANDONED IDEAS

The next layer of detail was moving into story specifics. Marc runs through some of the earliest ideas, around the time Eli's "slideshow" was demonstrated. "We were going to do something global, to cover the whole Earth, doing something with three different major alien races. We pretty much never wanted to leave Earth; we thought we'd take all the alien stuff and bring it here, because it would be more interesting to see familiar environments altered by alien technology than to go to some totally random arbitrary alien 'art place.' We went down this road for awhile with this really convoluted story of alien invasion, and went from a dozen different settings and they were on all different continents. 'There's something in the Weizmann Institute of Science in Israel, and you're guarding this from alien invaders.' 'There's an undersea base;' we had everything!"

One of the more vividly remembered starting points from the game was the emergency room breakout. "That was pretty early on. You'd been broken out of a hospital clinic by rebels, and there's a whole chase in an ambulance, and you're taken to this secret base, and then you're put into a teleporter. There was another beginning where Gordon Freeman was an agent." Possibly in the service of a certain Government Man, "There was you and a bunch of other agents were like you. Your HEV suit would have become this weird, black leather stealth suit with all these devices latched on it. There was some kind of parasitic implant thing in his brain that would kill him if he went against orders."¹³ Gabe Newell took one look at it:

"It's not *Half-Life*."¹⁴

"He was right." Marc agrees. "We had some really elaborate stuff going on with agents and counteragents. That was really convoluted. Gradually the process was to simplify things to make them directly related. So it gradually changed from this globe-spanning thing to, 'Let's do a city, or a region, an area where you go out and come back in,' you end up kind of where you began. It was our little local level design philosophy on a larger scale. You can see your goal, and you had to thwart a bunch of obstacles that get in your way, and at the end of the level when you get there."¹⁵ >>





A City 17 Courtyard, an underground tunnel (entered once you flee the City), and a rooftop (one of the earliest locations after the Train Station). To the left is the in-game structure. To the right is a reference photograph.







HEAD EAST, FREEMAN

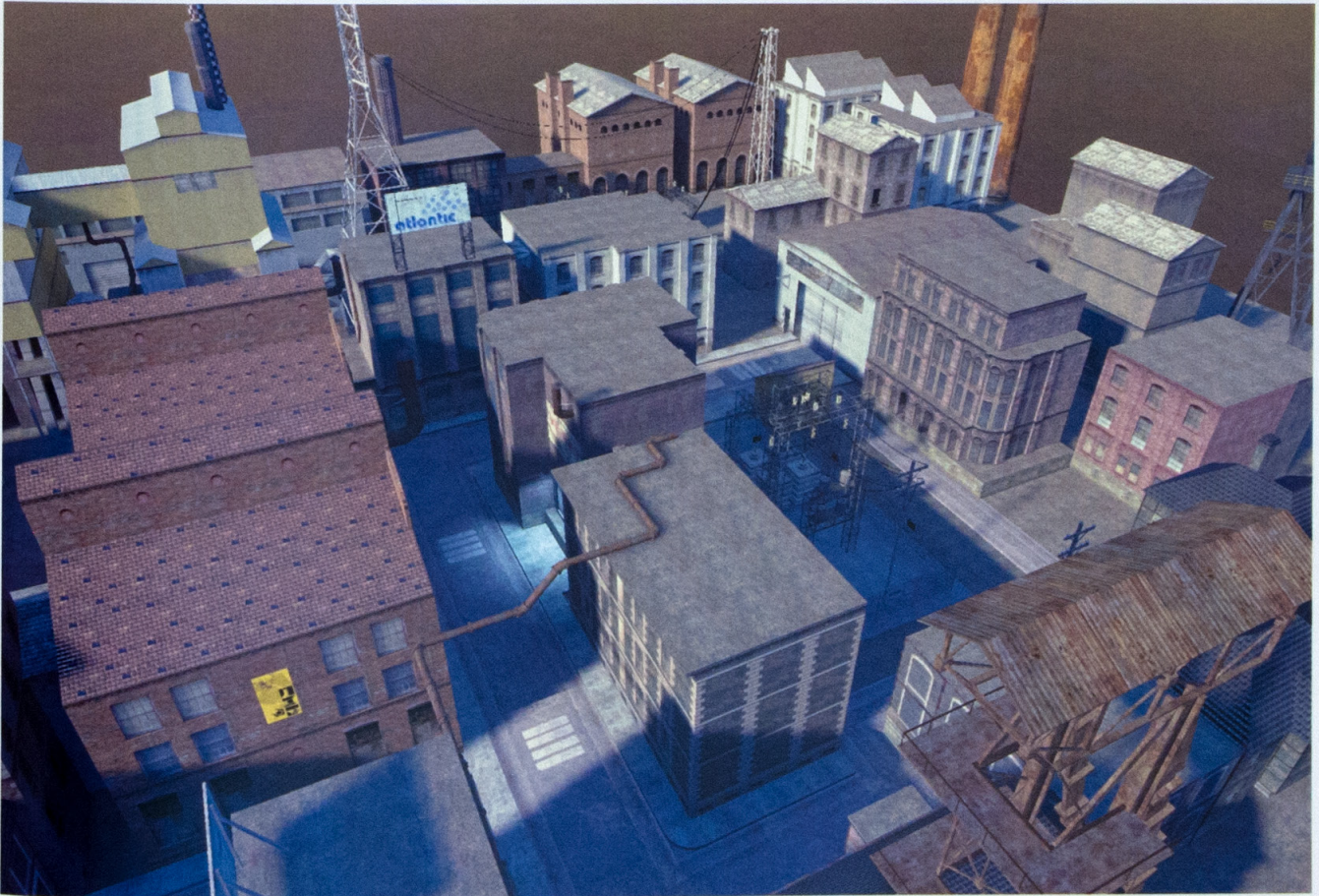
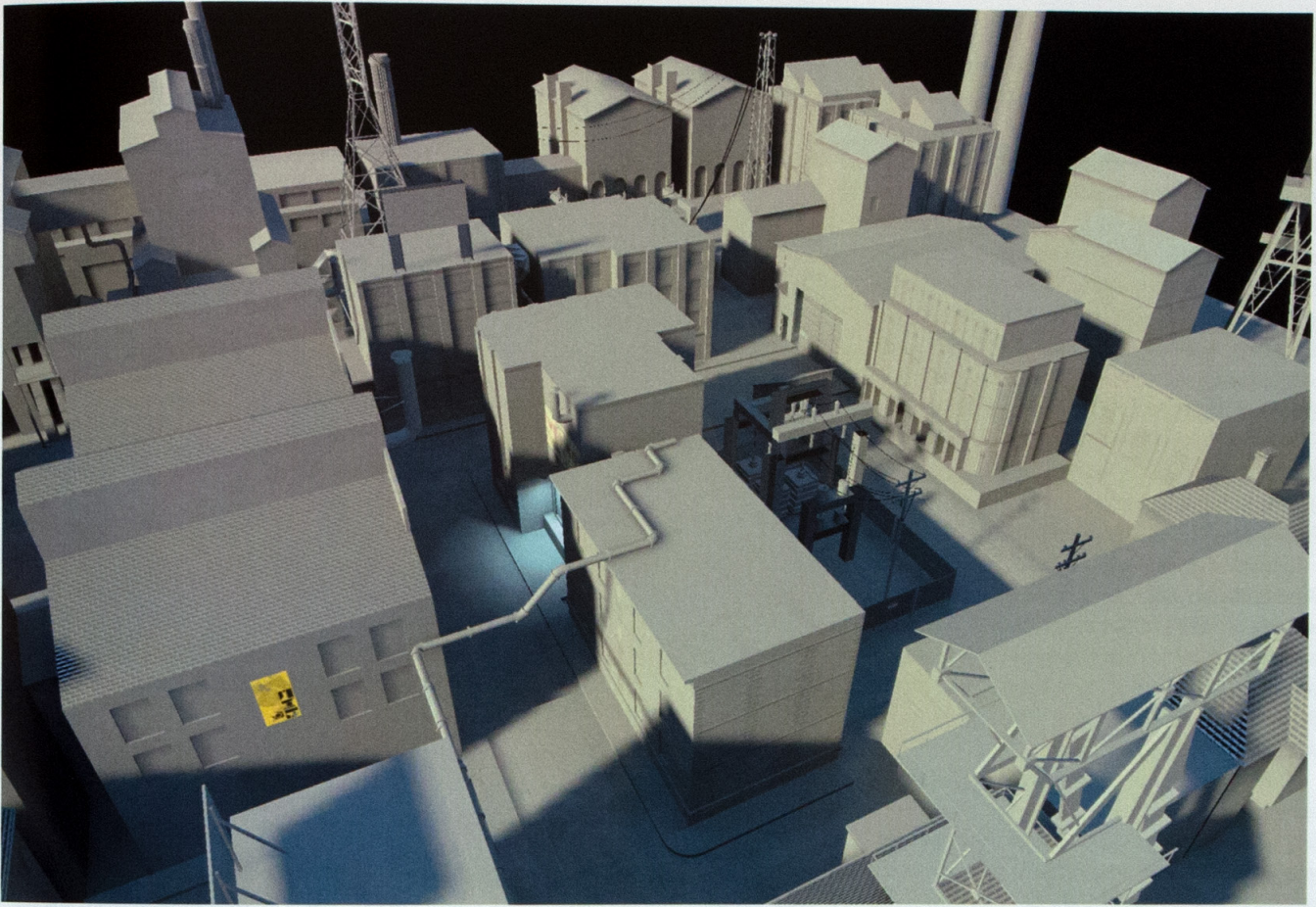
Four years after the circular story method was agreed upon (which Marc talked about earlier), this hypothesis can be seen in the game. One of the first scenes after you escape the train station and you're carefully maneuvering across the shingle rooftops of the city is a startling view. "The Citadel. Yes, it's a deliberate landmark that we want you to feel this relationship to. You go toward it, you go away from it, and you'll develop more and more understanding of it as the game goes on. Hopefully everybody that's seeing it when they first step out on to the plaza is going to go, "They're not going to put that there without letting me get into it, right?" [laughs] So you know from the beginning that you're going to get there. But for a long time you're going in the opposite direction. But eventually, the Citadel unifies the whole sprawling plot."¹⁶

From a storyline perspective, Marc knew that the level designers were bored of familiar settings, and the decision was to build a city, Eastern European style. "In some of the early sit-down proposals, we had settings in Washington, D.C. Now, Dave Riller is from D.C., and he had no interest whatsoever in building anything that had Washington, D.C., in it. We had to figure out something that we all felt a relationship with."

Marc cites the example of *Max Payne* by Remedy, a development studio based in Finland. "The developers of *Max Payne* were excited thinking about New York City. Unless you live in New York City, and know its environment, if you aren't familiar with the place, you have all these associations about it, like all these shadowy places you have never seen, and you see characters against this background, and a picture of this environment is much larger in your mind than it would be if you actually lived in the place. So we deliberately chose the place we weren't familiar with that we thought would excite the imaginations of the people who built it. We thought we could create a more exciting environment for the player if we were excited to explore it."¹⁷ "We also didn't want people to think that they were on a vacation,"¹⁸ offers Erik Johnson.

Marc sifted through the photography Viktor Antonov, one of the key creators of the seminal FPS *Kingpin* and a concept designer, had collected on his travels for the different layers that *City 17* would possess. "At one point we had lots of pictures of Prague and maps of European cities and even Moroccan cities and towns. These were all things we thought were cool from a level design perspective as opposed to a city that's just a rigid grid of streets. With a newer city, there's not a feeling that you could stumble onto something really unexpected. I think we were kind of tired of those environments because we were seeing them a lot."¹⁹ The answers lay elsewhere.

The answers lay in Bulgaria. >>



A City block, before and after texturing and bump-mapping

EASTERN BLOC PARTY

Viktor Antonov knew there was a simple choice to make: "There were two directions or choices, either we do a sequel, which is just the same settings, family environments changed and improved, or go in a totally different direction and gamble. Since this was an ambitious project the idea was to change it completely." As most of the original game took place in "small *Quake*-style hallways, the obvious solution was to take it outside. We were talking about creating a fictitious city for a long time and, I started thinking of what was out there." One pop-culture referencing later, Antonov came to the conclusion that "it was pretty much different versions of Los Angeles, downtown cities out there, or the *Judge Dredd* sci-fi city. We wanted to do something that hadn't been explored yet. We figured, 'Let's include some vague Eastern European theme' that wasn't defined in the beginning."²⁰ It was a good starting point.

Throughout 2000, Valve continued to conceptualize. Viktor remembers that, "We were even going to go more ambitious and do more cities, but just doing one realistic city is something that has never been successfully solved in a game. The output was so much work." Viktor and the designers narrowed their "Eastern European" city search once the overall concept was approved.

"We constructed some 19th-century architecture, the sort of cliches that represent most of Europe. It turned into a fairy tale look pretty quickly, so we got into finalizing architecture a little bit. What would it take to make a believable city?" Cities were studied meticulously: "We started making up styles. We used a little bit of the old 19th-century architecture, added 1930s and 1940s buildings, then the 1970s buildings or layer. A lot of research went into that, and a lot of consistent mixing of architectural themes." Last up was the 'Combine design.' "Finally, we came up with the alien designs, which we implemented on top of everything."²¹ City 17 was born.

Viktor, who was living in Paris for some of the period, visited various Eastern European locales on a search for that perfect, slightly run-down, partly grimy, and almost depressing look. He didn't head to the overly cliched Prague: "Most of what is known about Eastern Europe is probably Prague. It's a medieval city and that is where all those vampire movies take place now. We went further east, more to the Baltic Sea and the Balkans. There is no medieval stuff there because these countries were occupied during the Middle Ages, so they were entirely built in the 19th century. And then there was the specific look which is sort of copying together other big cities, like Paris."²² And lest you think of following Viktor on his European field trip:

"I wouldn't recommend vacationing at any of these places."²³



A concept of an area of City 17 known as the palace



An early design for City 17 transport commandeered by the Combine

SOFIA'S CHOICE

Viktor focused in still further, and the final City 17 has elements from a number of specific conurbations: "It's a little part of Sofia, St. Petersburg, Bulgaria, other parts of Russia, and Romania. These are countries that we used for reference." Many of these references were from literature and photography. Viktor's trip took him "to Bulgaria and I traveled through Yugoslavia, and we took a lot of photographs. I would go twice per year and take shots depending on what we needed."

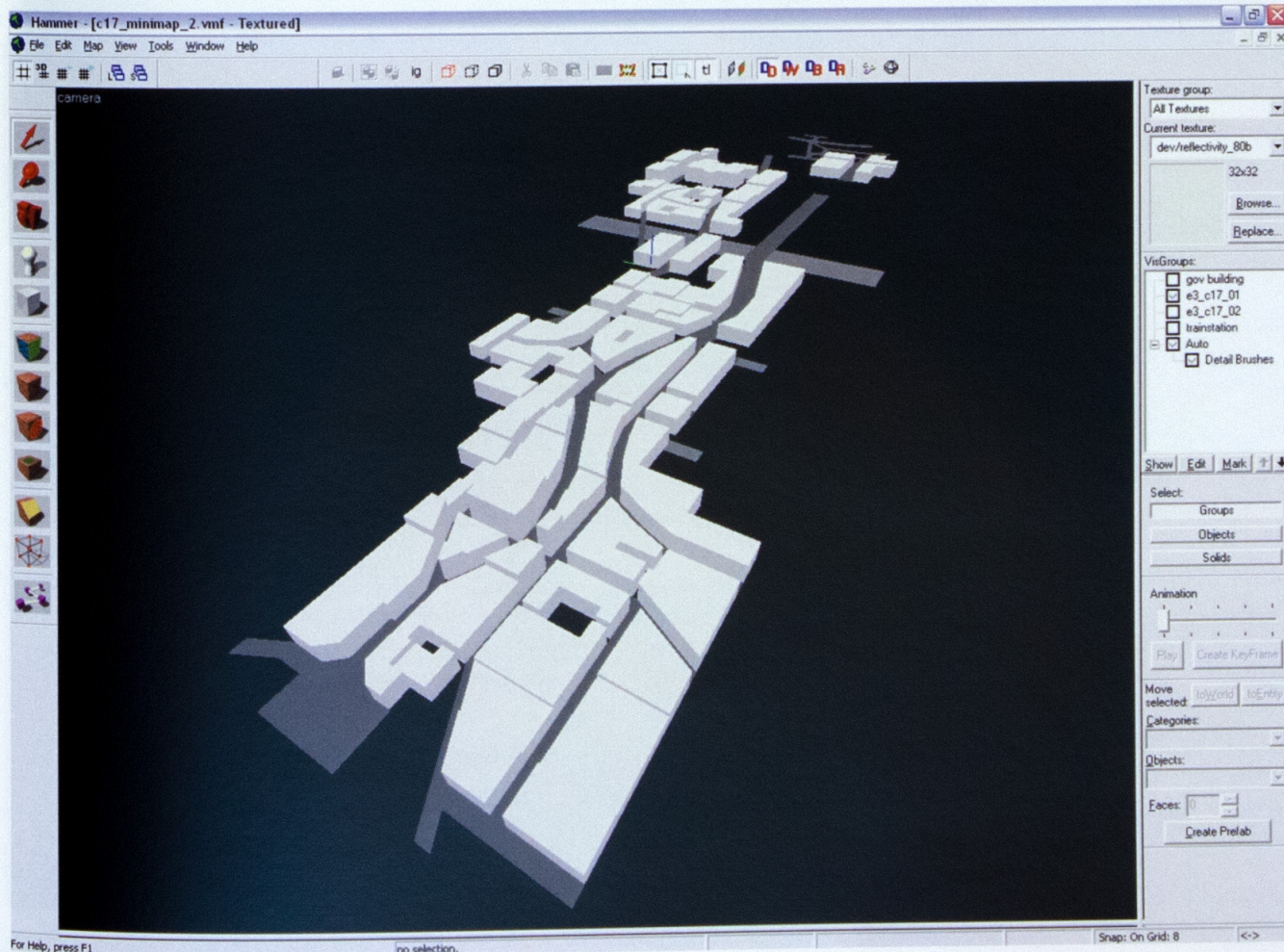
Viktor describes the process as "very interesting, because we can get things that we needed exactly for the design that we had written before, and bring them back here to Valve. I would work with the models to integrate them, get textures from [his own photographs] actually." Viktor requests that while gamers wander the city, they don't ask themselves, "Is this Prague?" At least I would. No. It is an amalgamation of about three different cities. There are no pointed towers or anything medieval at all, it is a different style." Viktor was determined to create an exclusive metropolis, "A little bit unique, not only for gaming, but movies too. Our ambition was to create a fictitious city. It was an area that had not been exploited at all."²⁴

There was a slightly eldritch feeling to these places, allowing the designers to further their construction into the realms of reality, but toned down from complete realism. "We chose elements of the Baltic seas and then we went into the Sofia. There was fantastic scenery every once in a while because it's the only presence that's been there. There has been a lot of pollution and destruction. It is interesting because *Half-Life* was very stylized because of the medium and the way it was built. We had to choose a level of stylization. We could have done 100 percent realistic, like *S.T.A.L.K.E.R. Shadow over Chernobyl* does, but that wasn't really interesting to us. We wanted to give it a little twist, an abstract and surreal feel. So we took all that realistic research and tweaked the colors, mapped far more kinds of styles in the game's atmosphere than there actually is anywhere in Eastern Europe."²⁵

Expeditions to physically explore the old Soviet Union resulted in numerous design enhancements, and an additional look and feel of the game's coastline and slowly decaying industrial landscape. But City 17 was always the focus, or hub. Viktor explains: "It was the alien invasion center. Then we wanted to take the player outdoors to give it more realism. So, you start from the city, go along the coastline and you drive along the coast, and you have fishermen villages, and then you get further and further away from the city to a industrial wasteland, then to an abandoned prison off an island. That is your path."

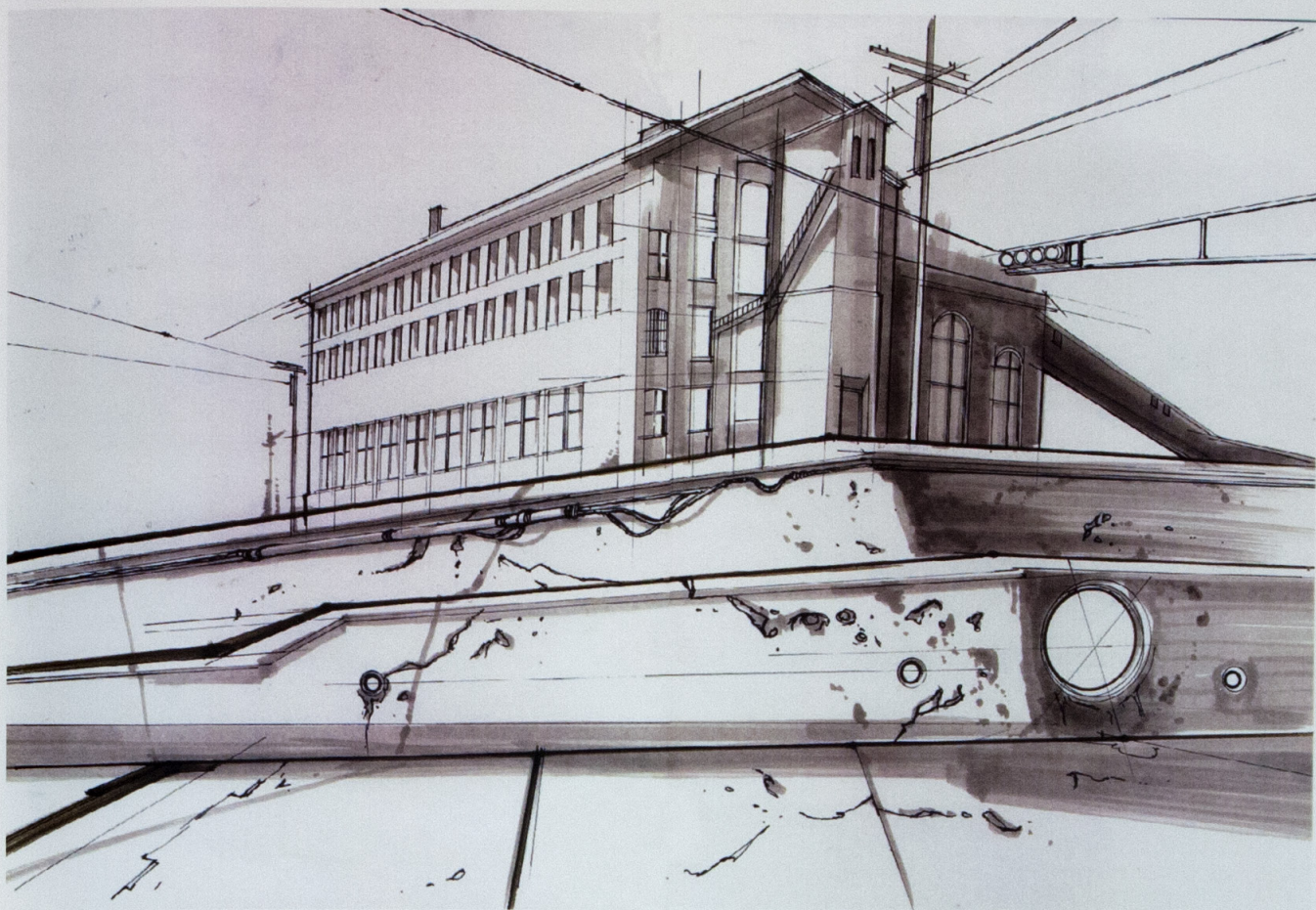
Then it's a return to City 17 for the infamous street-by-street battles, and a final ascension of the Combine Citadel. This threatening monolith and its gigantic crushers slowly eating the city's buildings are another attempt to emphasize the alien menace. "The city has a lot of pastel colors and nuances and rich textures." On the other hand, "the aliens are intense and saturated, and I wanted something that would just be black and solid and massive to contrast all that stuff, not to get too noisy."²⁶

A sample portion of City 17, as seen in Valve's world design tool, Hammer





Design renders for the opening Canal maps









Combat and peace in the canals.
Note the atmospheric and seasonal conditions.

AUTUMN IN THE OLD WORLD

Viktor also made sure the seasons and lighting were pinned down before work began in earnest: "We first defined the season and the lighting style, to establish Old World lighting atmosphere, because we knew we wanted to cover a live, physical area. It takes place in autumn. We wanted to have self-diffused light and nothing too sharp in order to have atmosphere and a sense of loneliness and isolation and decay. So this was the main thing that was going to bind the whole location together, we could see it. So we looked into facts. Like in this part of the world and this season, the sun doesn't go any higher than 30 degrees. So all the shadows are pretty much consistent with fall or autumn. And then we took the sky colors and climate conditions, and pretty much defined the lighting style and a lighting palette that drove us through the whole game."²⁷

Viktor is pleased with the results, and has some personal favorite areas: "We work in focal points related to the story, so of course the first obvious thing is the ground vista when you enter the city. We take you on a rooftop scene and give you the classical city landscape, so it will situate you. This is one of the high points, and then the next climax will be revisiting the same place after it has been occupied by the aliens. Then we will take you to the big tower, the Citadel in the center of the city, which is the financial old downtown with its big square and it's the alien's Citadel and headquarters. So these are the three grand points."

These epoch-making zones are further surrounded by numerous secondary points, too. "There are many layers, yes, and we were cautious to not try and overwhelm the player the whole time. There are the impressive areas that are more quiet, and little areas when you want to rest a bit before you are taken by surprise and shocked again. We show the same areas twice with different lighting conditions, different atmospheres just to change the mood depending on what the action is."

Then comes the subsequent design plan; the use of architecture throughout the game to contrast, both forcefully and subtly. Viktor points to the "contrast between the human zone and the aliens. In order to really shock the player with the alien element, we wanted to ground him and make him feel like he was in a *really* real place and everything is almost normal, and then place the alien policemen who looked really outrageous and different."²⁸

At a more macro level, the placing of entire city blocks created a whole other method of implementation. This was a challenge, says Viktor: "Putting the street grid together and making it in proportions of the city is really difficult. Does the courtyard fit? We know the level designers will have courtyards!" Early on, it was decided to simplify the process: "When we were working on that stuff, I could picture early 'slotted in' proportions just to simplify our lives. The boulevards are our widest street, and then we have the next size street, and then the narrow alleys. We worked with three sizes of streets throughout the whole process and that helped keep us sane. We tried to stick with the grid as much as possible. It was pretty much urban planning [laughs]!"²⁹ >>

Early concept of the Coast Bridge sequence





In-game screenshot of the coastline bridge taken by the Combine. Three concepts of the bridge and depot.





CITY 17 UNDER CONSTRUCTION

Gabe also shares his views on Eastern Europe as a good game location: "On a project like this, a lot of things happen for multiple reasons. One of the reasons that we liked Eastern Europe as a setting, that in turn resonated with a lot of the things that we were doing, was that it represents the collision of the old and the new, in a way that it's difficult to capture in the United States. Here we are in the Pacific Northwest...in a lot of ways we live without history. But you go over there, and you have this collision between all of these things, the new architecture, the old architecture, and the time, the fall of communism...there's a sense of this strongly grounded historical place."

With the arrival of "the Citadels," the epicenters of the oppressive alien menace known as the Combine, the juxtaposition of human history and sleek black alien savagery could, well, combine. If an Eastern European city "suddenly went through all this turmoil and disruption, [there was] the potential for good outcomes and bad outcomes that made it work for us, you know, as an art direction."

Jay's orderliness can still be seen in the finished game: "There were also characteristics to Jay's personality that sort of ended up being mirrored in some of the structural decisions we made.... Jay's a pretty organized and tidy personality, so the structure, the physical layout [chuckles] of the pathway tended to become tidier just from working around him."³⁰

Perfecting the look of a war-ravaged city isn't as straightforward as a gigantic jigsaw puzzle though. Both Viktor and Bill Van Buren spent time viewing completed zones. "The more interesting days are when we look at the textures in the world and they don't look good and we have to sit down and analyze what makes it look 'gamey.' For example, one day we figured out a problem with every older texture that was used a lot for reference. Each lining on the texture was slightly inconsistent in a very subtle way. So, we decided we were stopping this point of reference, we got to model our textures and then extract a lot of information from our models through bump-mapping. We also used mip-mapping, optimization for the textures. The further away you go, the smaller texture you get. It's pretty much like the model getting smaller, and the texture gets smaller from far away too. It also stores all the light information. Our texture artist basically uses XSI [the modeling program Valve uses, by Softimage] and we recreate a façade for the building so you have some columns. Then that way we can have consistent light direction and information, but we can also generate bump-maps from those 3D models too, so we can get a perfect normal map with curves and everything like that."³¹

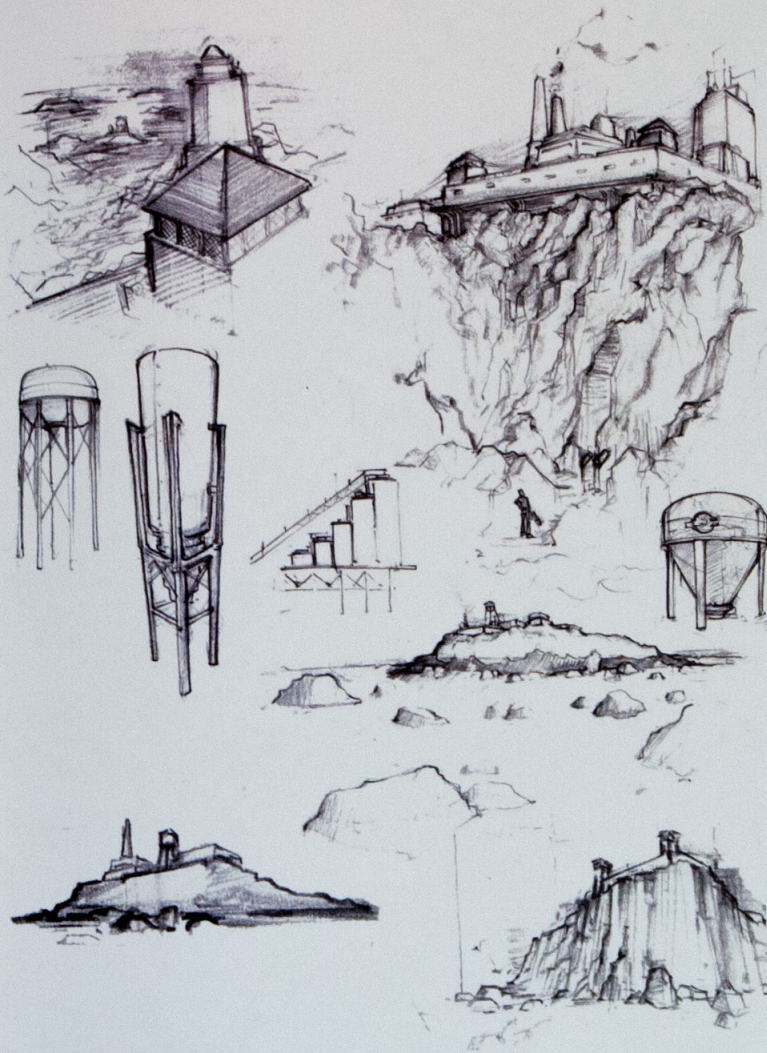
Viktor comments that the differences are very noticeable: "There is a big difference in how things are done normally because people will Photoshop their textures in for a reference, and we pretty much model every single detail that you now see in the game out and extract with 3D information. That adds to one consistent noise, you don't have one blurry photo here and one sharp here, and then the next texture is in the back." This prevents gamers from being unceremoniously removed from the realism by shoddy background texture blurring.

This detail continues until the team is satisfied that out-of-place textures can never be seen during regular gameplay, although Bill notes that "the Combine wall is a great way to block off streets so the player says, 'I can't go beyond there and I don't have to.' So technically we don't have to draw all that other stuff back there. The city being occupied helps to move the story along so we remove the 'invisible wall' problem." Another way of avoiding an over-abundance of redundant texturing was to construct destruction. Bill again, "We placed more destroyed buildings, like having a tipped over building and then kind of explain that the Combine wall nudged it over. We looked at some earthquake references for fallen structures."³²



Rickety attic floorboards inside an old unloading dock building.

From concept sketch to in-game reality;
the lighthouse along the coastal road



SCENIC DISTURBANCES

The player expectations should be as near to real-life as is possible, but as Viktor explains, Valve had to set some barrier of interactivity: "We wanted to give the player the right expectations. Even in real life, things are not completely interactive. You can't go to a person's place, enter it, and punch and shoot at them and keep on doing this for longer than 10 minutes. So basically we condition the player to what he can do and what he is allowed to do. You are not allowed to do everything—real life is pretty linear—so we use a lot of the gameplay elements to control where the player goes."³³

Dilapidated tenement blocks, medieval hamlets, and maximum security prisons may be impressively stylized, but they need to be populated. And not just by headcrabs. Viktor talks about the final layers of design; the minutia: "Technically we tried to set a new level of detail that hasn't been set before. Things like wires, antennas, and clouds up in the atmosphere." A factor influencing Viktor's inspiration for placing these objects comes from Japanese animation: "We were a little bit inspired by anime, because they are really strong in using themes. We chose one element that is significant and make a good-looking scene, and repeat until it becomes really like a musical theme. So antennas are one of the themes that we have. Then every scene has its own theme, old ruined docks that repeat everywhere." Note that Viktor doesn't mean cloned textures, but groups of similar objects populating the landscapes. "There are a lot of wires, a lot of smokestacks, you have to look for different little repeating things for map or level."³⁴

When Viktor says "a new level of detail," he isn't messing about. "I think we had somewhere around 4,000–5,000 textures and 2,000–3,000 models two years ago. I lost count now. I think a lot of it will be in the final game, but we will just include most of it for the mod makers to use like we did in *Half-Life 1*. If anything, we have created too many assets for too many areas." Bill notes that, "There're some objects left from 2001 that we'll be shipping."³⁵

These include obsolete objects crafted before minimum PC specs were buttoned down: "We were learning the whole time too. At one point we were building each individual pipe segment and someone said, 'You shouldn't be doing it that way, try it in clusters.' It is still included and it can be used; it will be on the disk. Yeah, basically we joked about how we could put together an entire series of architecture CDs and sell bottles, or benches, or chairs."³⁶ >>



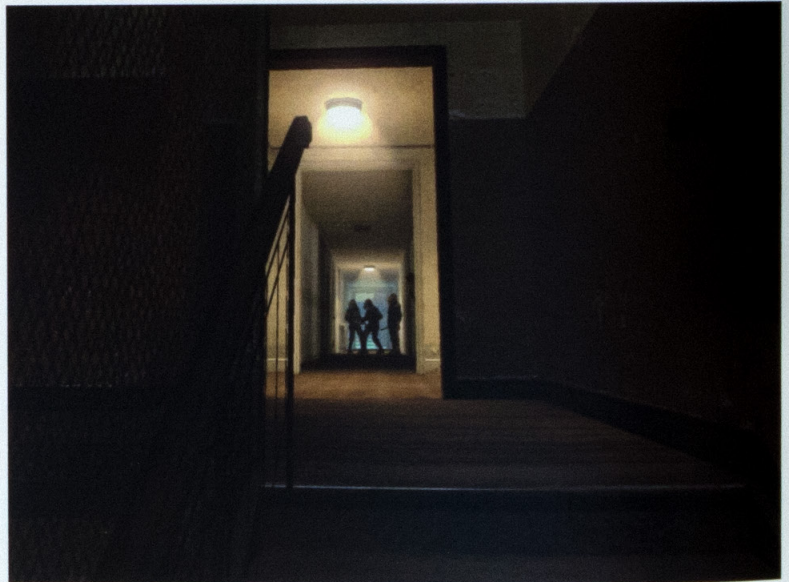


DETAILS IN THE DETRITUS

Viktor continues: "We have three sizes of objects in the world, and we have sort of a formula of what makes a level look balanced. We have the large, medium, and tiny objects. This is the basic formula. We have to check on each one that's built to match the level of detail. First, we start off with city blocks, large girders, and big architectural designs. And then we went down to ornaments, antennas, trees, and then we went down to trash, posters, and little decals. This was the process. We were trying to work in context. It was very important."³⁷

It doesn't end there either; each object needs to be recreated at different detail levels. "This is something we do to optimize performance. For every single item. I think they go down to 200 polygons at some point. Yes, each model has five different versions." Objects are constructed in a specific order, too: "Most of the modelers, texture artists, and world builders tried to focus on one area at a time and we'd throw all our resources there. 'Let's all focus on this!' A big checklist divided between this model, this model, this model...and then we would just model each and every day, setting up week-long goals. So on Wednesday, we needed to have all this done...et cetera."³⁸

Although there was always the temptation for product placement to infiltrate City 17 ("Dr. Breen says, Just do it!"), this wasn't necessary. Viktor is thankful: "We are a rare case where there is not a marketing department who is involved in the creative process, so if it serves the art, we will have the Coke sign and if doesn't we won't have it. Coke is a perfect universal brand that wouldn't hurt. But the problem is; what if you want to break the sign? Or have a crow shit on it or something? Would Coke agree? We're not sure of the rights. We have made some blank textures though; 'your ad here!' call Doug Lombardi [laughs]!"³⁹





Two in-game screenshots of City 17 (facing page) and an early concept

Picking an object at random (a tree), Viktor thinks about how many they constructed: "We probably did about 20 different tree kinds, and then you have bushes and grass...there are a lot of specific objects related to architecture too." That means when you enter a building constructed in the 1940s, it has elements such as radiators from that time period. Later, when you reach a 1970s tenement block, the radiator is more modern. Viktor takes this even further: "I tried to sketch a background story for who has lived in the apartments to make it real. Is the person an old man who perhaps has around 30 percent of his objects all scavenged from the dump—something really broken—and then a big ugly Ikea fridge or something next to it? There is a plan for every area like that."

Not only have Viktor and the designers managed this feat, but he feels this is imperative to good design. "If you don't know what you're designing, you are in trouble. It will just start doing stuff without a criteria, so that is sort of pretty important." Valve's designers made sure they thought about every piece of detritus fluttering through the stages. "Every window, every door, et cetera, has got to have their own personality and style. We put so much work and effort in every little detail. My favorite designs are still the buildings though."⁴⁰ >>

TRAINING DAY

Gordon begins his enforced repatriation by entering the City 17 train station. Viktor knew what architectural elements to use for this impressive initial zone: "The train station itself is an interesting example, because the original version was very close to a train station designed by Alexandre-Gustave Eiffel, of Eiffel Tower fame, that is in Hungary's capital, Budapest. Right now, the latest iteration is based on a train station in Paris. This is an element that we wanted to add; Eastern European metal architecture from the 19th century, and we finally stylized it. We had to start with the train station right away. We had the most time with it, and we wanted to establish a location there. So this was our crucial establishment shot and a big part of our investment, the train station and the square."⁴¹ Everything from the type of roof girders to the "Easter Eggs" (look carefully in this area and you'll see a strider thudding across the city in the distance, as well as the looming Citadel that Marc mentioned earlier).

Marc knew that the storyline had to take Gordon out of City 17 before bringing him back again, and the next huge assignment was deciding what exactly was abutting the metropolis. "We sketched an entire coastline, and overhead maps charting your progress through the world. You head along the canal system and out to the coast and follow the coast awhile until you get to an old prison complex. We wanted everywhere you went to have some relation to each other. One of the strengths of this game is that it really lets you feel like you're in a real place, and the geometry there is as solid as possible, and you don't have a bunch of magical stuff."

But with a giant and sprawling game plan, there were equally large problems to overcome. "How long is it going to take to cover this much ground? How do we actually build this? Can we do the thing where you go to sleep and wake up and more time has passed? To the extent that there is continuous consciousness through the entire experience, that keeps the narrative (or dreamlike quality of it) going. We really didn't want any consciousness disconnection. In *Half-Life* we got away with it when you got hit over the head and thrown into the garbage disposal. That was a fun cliché to play with one time. It's been hard, but we've really tried to have the entire game run without the action being cut."⁴²

Viktor has a similar take on the canals: "The canal was our transition out of the city. We wanted something pretty original and linear at the same time. We have all these architectural themes that start to replace the others we built for the downtown environments. Going down from the canals you go more into 'the projects' areas and suburbia. And then you go into wilderness and nature. So the canals are pretty much the path out of the city into the wilderness, and the deeper out you go, the more monsters and wildlife you encounter and the more savage the environment becomes. Most of it is very heavy concrete, occupied and institutional look where the Combine headquarters are more wilderness and decay-based, with more pockets of resistance on the outskirts."⁴³



The Combine "Razor Train"

SCIENCE FRICTION

One way of solving Gordon's real-time hike across the outlying districts was by using vehicles instead of teleporters. Marc comments, "Yeah, to cover a lot of ground fast. The game takes place over three days, so it's a lot easier to say, 'I'm covering a lot of ground, and time is passing,' so that we actually can create the sense that the whole day has gone while you've been playing this game." The other way is to make sure that areas you see in the distance are correctly proportioned when you reach them. "Some people pick up on that. They start to feel that it's not real. We try to be faithful as much as possible, like in making building interiors as big as they should be. If you've seen the outside of the building, you're not going to find yourself in that place that's much larger than that place that you saw from the street. But it still has to be a fun game, and not to be this accurate, architectural plan. We wanted you in the city, and your relationship being with the Citadel."⁴⁴

At a more personal level, for Gordon's character, the emphasis was still on the possibility that he'd one day lay down his machine gun for a mathematics lesson. Marc illuminates this point: "You're flushed out of the city and urged to go find Dr. Eli Vance and get help. Your goal originally, that we try to keep emphasizing, is that Gordon Freeman was a scientist and that this is one of the reasons that you're useful to the members of the team. You're not just the action hero. There's always this carrot dangling." Marc wanted the science team to be excited to meet Freeman. "They would say, 'Gordon, we got you back! You're finally going to do some real science here! We're going to take advantage of your real strengths.' Not just crowbars and shotguns, but you're going to do some real physics. Of course, immediately all hell breaks loose, and out he goes again. Except now you've got the gravity gun, so you're actually doing physics [laughter]!"⁴⁵

The player needed some connection to the original game, a safehouse from the horrors of the Combine, and a way for Valve to add some choice dialog. "So we brought in the science team from *Half-Life*, and gave them all names. To some extent tried to make sure these characters all have a relationship with you when you come into the game." Marc didn't want to rely on tired old clichés: "You don't have amnesia and you're not redefining who you are and who the team is. The world constantly tells you who you are. The player might not know, but we don't want to do that boring thing where you have to uncover clues to your identity." If the player isn't sure of his role, Valve suggests you play the first game. "We were happy to have these characters who have a relationship with each other until you show up, and they hand you from one team member to the next so that you feel that there is this safety net, like the world knows who you are, what to do with you and they have these high expectations of you."⁴⁶ >>

Concepts of the Seafloor sequence that would eventually become the Coast levels





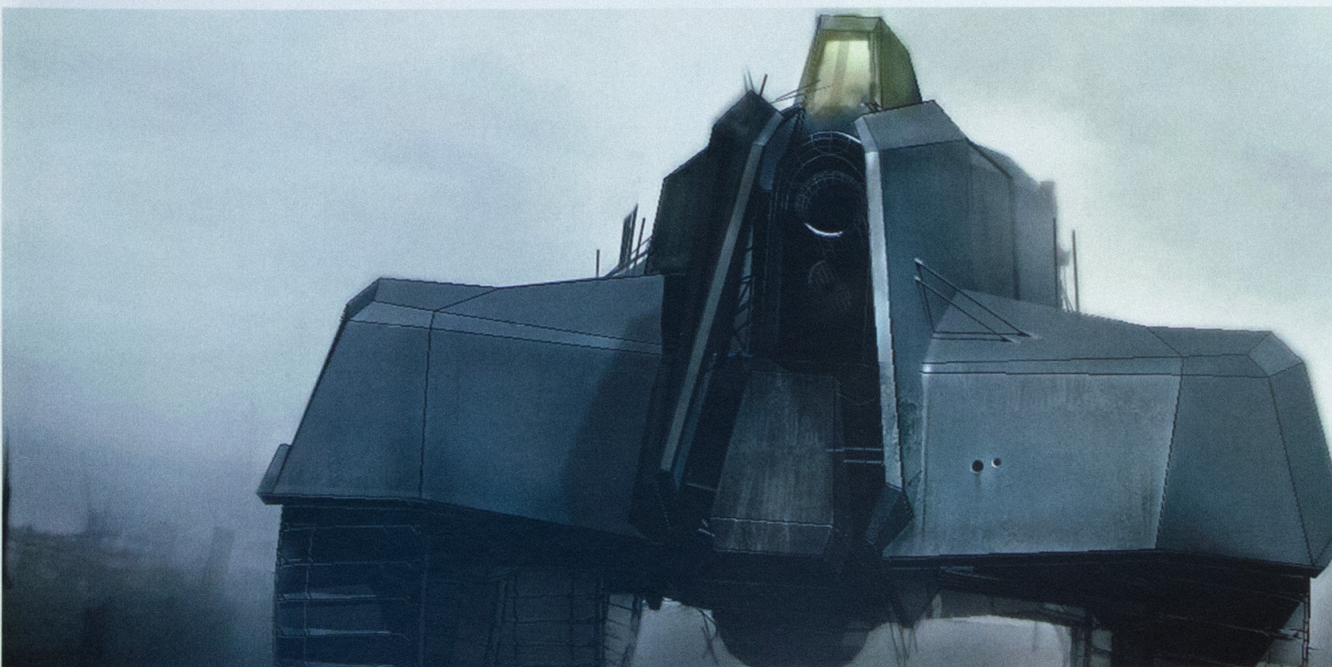
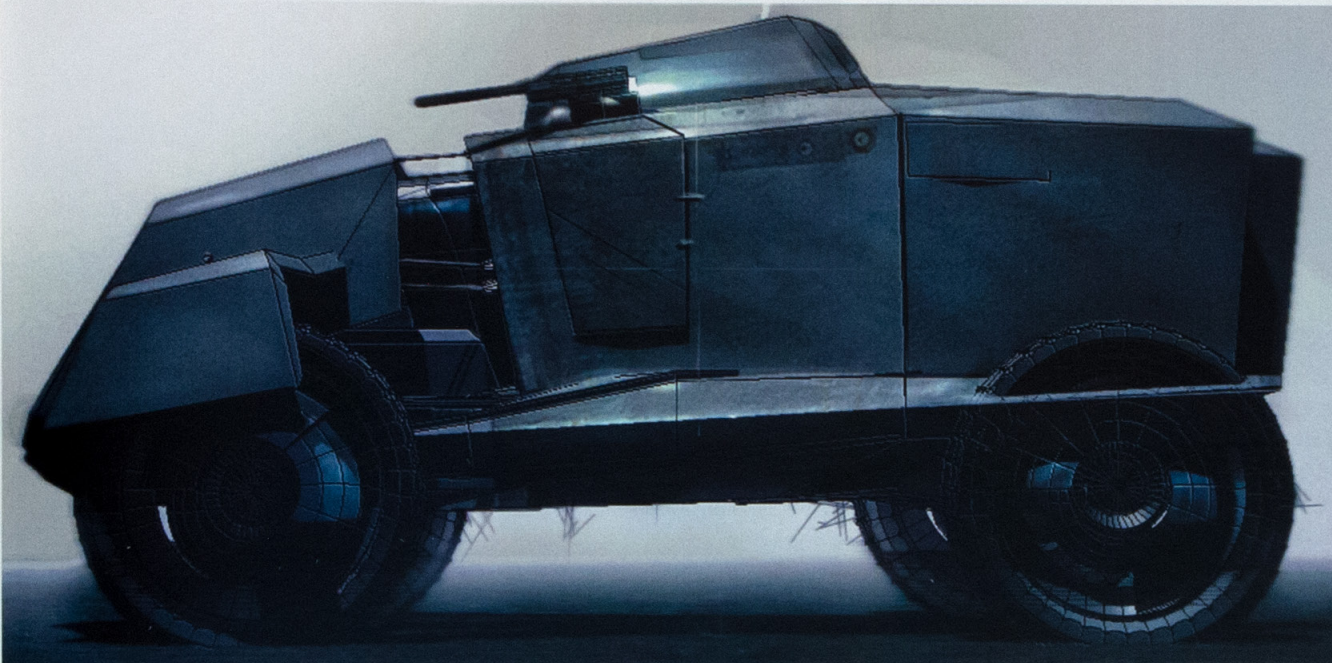
Concepts for exterior environments that are part of the universe, but not in the final game

SECRETS OF THE COMBINE

Marc reveals the secrets of the Combine: "This is a generic term for the game's 'evil empire.' It allows us two luxuries: It gives us the ability to design monsters based on what's fun from a gameplay point of view rather than from an ethological realism. So for example, we wanted to be able to have ant lions and barnacles, and soldiers and striders, and all types of monsters for gameplay reasons. We don't want to say, 'We can't do that monster because it just doesn't fit into the game,' so we invented the Combine. The Combine is an organism. It is successful because of its lack of specialization."

This is an alien viral infection in physical form, spreading over entire planets. Marc clarifies, "It's something that no one has ever been able to adapt fast enough to counterattack, because it has so many arms, and so many different attacks, and so many different species weaponized and co-opted for its strengths. This includes humanity; the Combine utilizes what we would deem the negative traits in humanity. So, the Combine turns those that it can corrupt into monsters, just as humanity has seen it do with all these other species. What's left of these other species is what they can't use, so they just wipe out, and what they can use they add to their invasion forces."⁴⁷

Sketches of the formidable Combine APC (Armored Personnel Carrier)



This brand new galactic menace has, slightly ironically, led to Gordon Freeman's previous alien adversaries—the vortigaunts (a.k.a. alien slaves) joining with the Earth resistance forces. Marc has some interesting backstory: "The idea at the end of *Half-Life* has been explored a little bit but doesn't really come out that much in the game. The idea with the vortigaunts in *Half-Life 2* was that this species was the more civilized, organized army compared to the aliens you've seen in *Half-Life*. They've been pushed into this border world of Xen and there's a tremendous pressure on them, that you never really see until they're out of the way. The warp gates are opened by the vortigaunts coming through, and they flood the Earth to establish a foothold here, like they had done with Xen. Once the last of them are mowed down, you see what is beyond the gate. This is the Combine."⁴⁸ >>

BACKSTORY IN BLACK

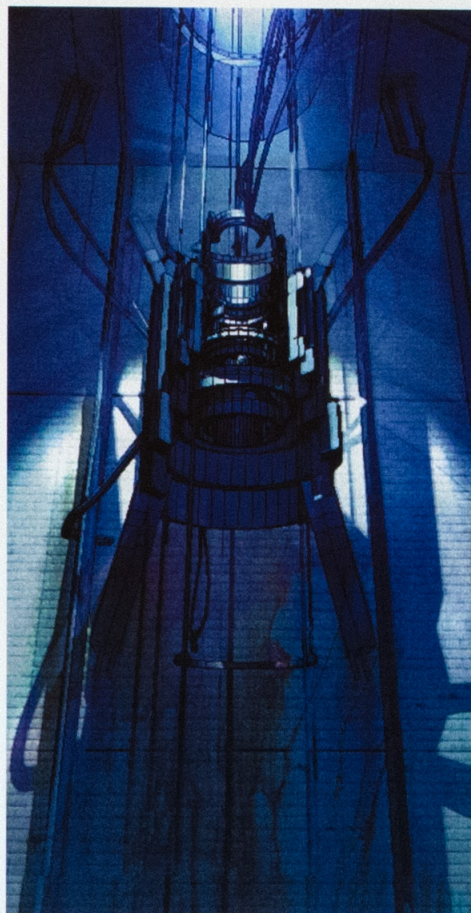
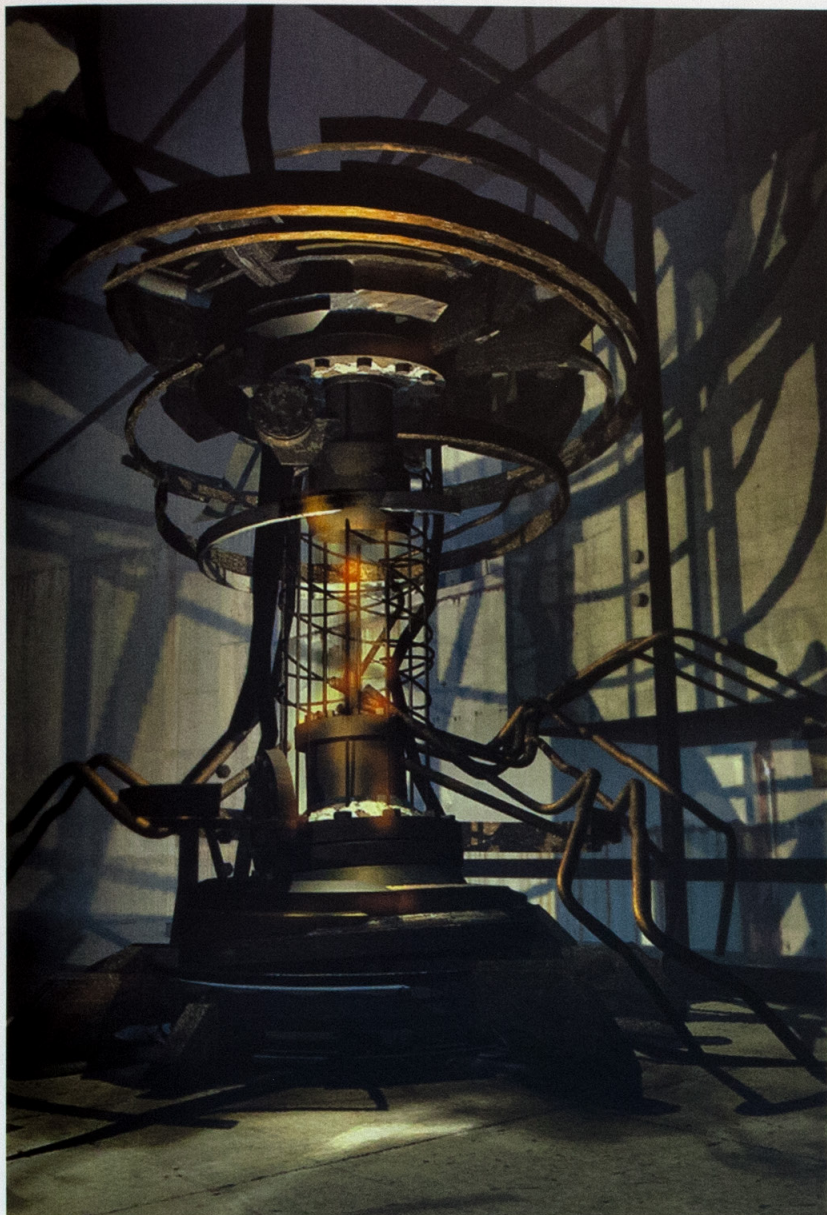
Ted Bachman adds: "The reason the Combine attacked now is because after opening up the portals of Xen, Earth became a blip on their radar, so to speak. There is an infinite number of worlds, so they can't get to them all, but as soon as there is evidence of technology, they assume it may be a resource to exploit—there has to be something good there if people have created portal technology. They look for the building of teleporters. That somehow is easily readable for them across the universe, like a homing beacon for them to come in and take over."⁴⁹

"In the time between *Half-Life* and *Half-Life 2*, the Combine is pushing through. An Earth leader, Doctor Breen, has reached a one-sided alliance. It isn't decided whether the Combine is either simply going to annihilate us, or are we going to work with them and see what we can get out of this enslavement as a species."

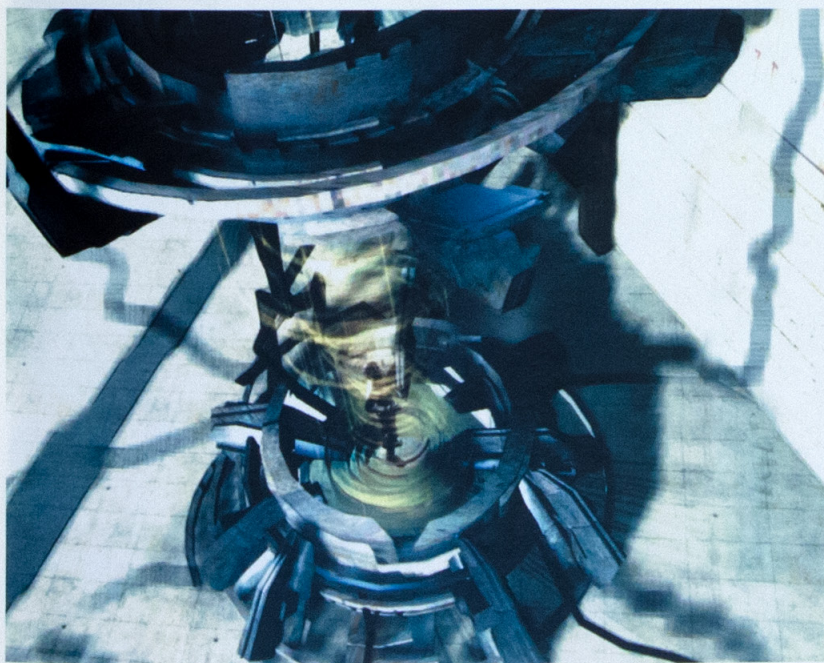
Although never specified in the game, Marc says amateur sleuths can cement this backstory together during *Half-Life 2*. "If you like to read bulletin boards and go into people's desks, you'll find scraps of information dotted about, enough to start putting pieces together. And at the same time, there's always the possibility that we or someone will want to explore the vortigaunts being here. We don't want to close those doors. It's been deliberate with both games to have an idea of what the range of questions are that we will answer and won't answer. So that people can have the game or story continue in their head after they play."

Marc speaks for many at Valve who dislike all the loose ends tidied up at the end of a game. "Sometimes I feel satisfied at first. You want to feel a complete experience, but I still want to feel like there's stuff to think about afterward. And a lot of times games leave you with nothing left for you to chew on. Then you exhaust the story all at once and don't want to think of the game again."⁵⁰ >>

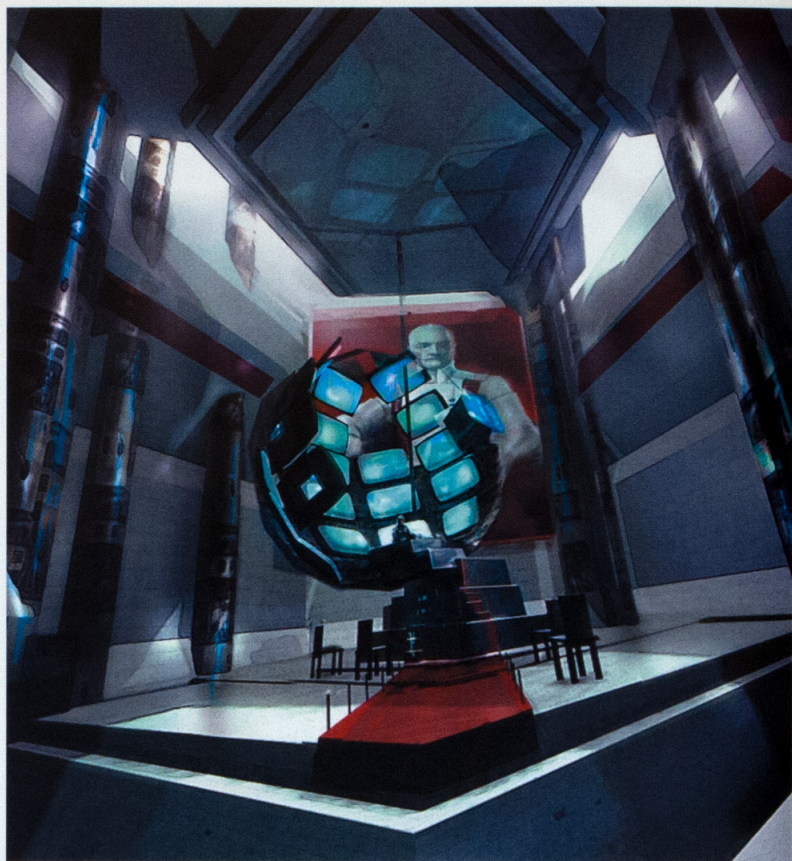




Three different teleporter designs, from Combine to human



An early design for Doctor Breen's office





GRIGORI DETAILS

Half-Life 2 also introduces the concept of 'cameos' to its universe, a brief interaction with a specific character for one or two key scenes before moving on. Players can expect the likes of Colonel Cubbage, the haughty British ex-army leader of the resistance holed up in a stockade along the coast, and Father Grigori, the priest of a hamlet called Ravenholm. "Father Grigori, is just like 'the man' of one specific locale. I think it's something we do really well, and is really fun to do. Having ally characters that you have a relationship with throughout the game is good for support in your overall game, but part of doing this is creating other characters and having fun with them too."⁵¹

Unless you're counting the MIA Otis Laurey from *Black Mesa*, this marks the first time the team has dedicated specific resources to cameos. But not as much as Marc would have liked: "We got a lot of the dramatic stuff hooked up so late and the animators started to work on stuff so early..." that Valve didn't have time to fully implement the feature to their liking. "We're going to do a lot more going forward. I'd like to do expansion games with a character just for this area. One of the environments that kind of went by the wayside was the scientific research vessel, which was the ice-locked ship, called the *Borealis*. The guy on that, he was the ship's engineer, Odell, and he was a main cameo character like Grigori. He lived on the ship and his section was all about the ship. You had to help Odell with some stuff on the ship, and he'd help you onto the mini-sub that took you down to an undersea base. There's a bunch of environments and script from that production basically waiting for us. We're going to do these as *Uplink* kind of missions."⁵²

Gabe sees this as part of Valve's unbridled creativity: "It's something that will probably come back, and that's an example of where we said, 'We can have two things where we spend half as much time or one thing where we spend enough time,' and that was where we said, 'OK, we love this, but we can get back to it later.' We have a hard time with this. A lot of people on the team have to learn over and over again that you have to let go of some things to get other things done."⁵³ That's why companies have expansion packs. >>

Early in-game concepts for a rusting shipyard, and the *Borealis* itself (opposite page), all no longer in the game

RAVENHOLM ON THE RANGE

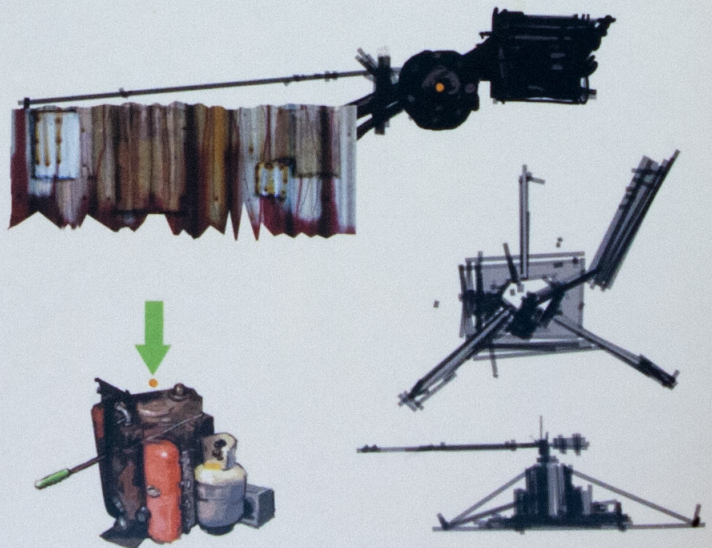
When you eventually escape City 17 for the first time, you're given a swamp skiff by the resistance, and must weave through the intricate canal system; a mass of grime-stained concrete pipes, sewer run-offs, and overflow channels. Erik Johnson recalls early plans for this area: "The original design of canals was set up with a lot of enemies that the player would drive under. But we just found that people didn't really consistently play through that way. They didn't want to leave a couple of guys behind that were pestering them or getting a clue that they were missing something in the game. For a lot of players they want to experience 100 percent of the game, and they felt like they weren't getting that, I think. So, canals went through a lot of changes to that end to make it more direct in terms of combat or more direct navigation."

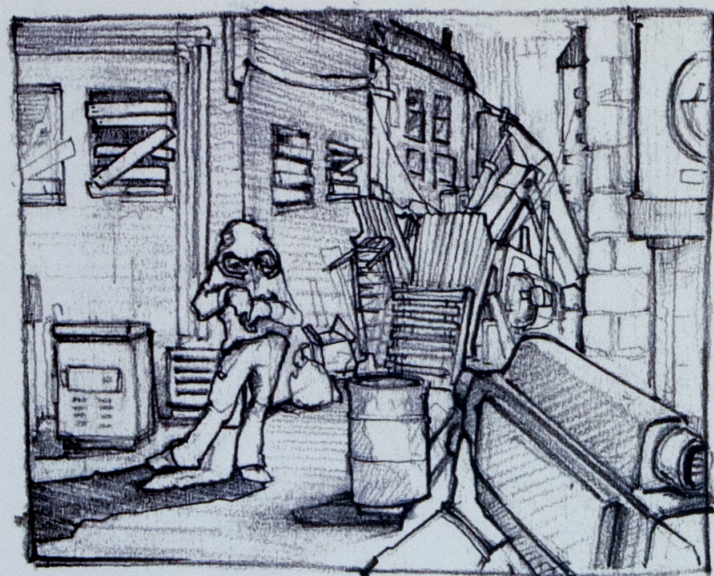
When the player reaches the Combine attack helicopter, and the mega-bombing occurs, "... was an area that we were trying to close off as a chapter of the game that they play, so that people feel very gratified at the end." There were two main concerns with the canals, aside from stretching them so the player felt he or she had traveled out and away from the city and into the wilderness: "That people felt like they had an end to reach and that they didn't get sick. Because people actually got seasickness playing the game. It's not that uncommon."⁵⁴

Once you've negotiated the canals, you enter the village of Ravenholm. Marc fills in some of the history of this wayward backwater: "Ravenholm was originally a safe haven for citizens and refugees who fled the Combine and police of City 17. It was an underground railroad stop for humans who helped each other along to get out. It was an attempt to have a little resistance colony in a human area not under Combine control. For a while, the Combine was content. They weren't bothering with incursions on the outskirts, because it was so dangerous out there anyway. What they tried to do was to keep in the humans as much as possible, and create the impression that everything outside City 17 is deadly. However, after the Black Mesa incident, wildlife was allowed to flourish up there." By 'wildlife,' Marc means the entities entering from the Black Mesa incident. "Things continue to come through the cracks. Not everything is part of the Combine; this wildlife comes from other worlds. They colonized here and adapted, so the barnacles are bigger and meaner now."⁵⁵ And so are the headcrabs.

Father Grigori was the priest of Ravenholm. "He was there for a long time, before the invasion. Has a deep attachment to the place, stayed on, and helped people who came there for shelter. The Combine finally notices the place and realizes it's a problem, in the days leading up to Gordon Freeman's arrival." Marc assumes the Combine's sensors pick up Gordon Freeman's arrival. "There are some stirrings in the air, and something bad for the Combine is going on and the Combine starts to pay attention to what the resistance is up to. They turn their full onslaught on Ravenholm, but they see the headcrabs have taken over, and it isn't a threat anymore."

The Zombie-shredding propeller, shown in parts (right) and a sketch for one of Father Grigori's traps (below)



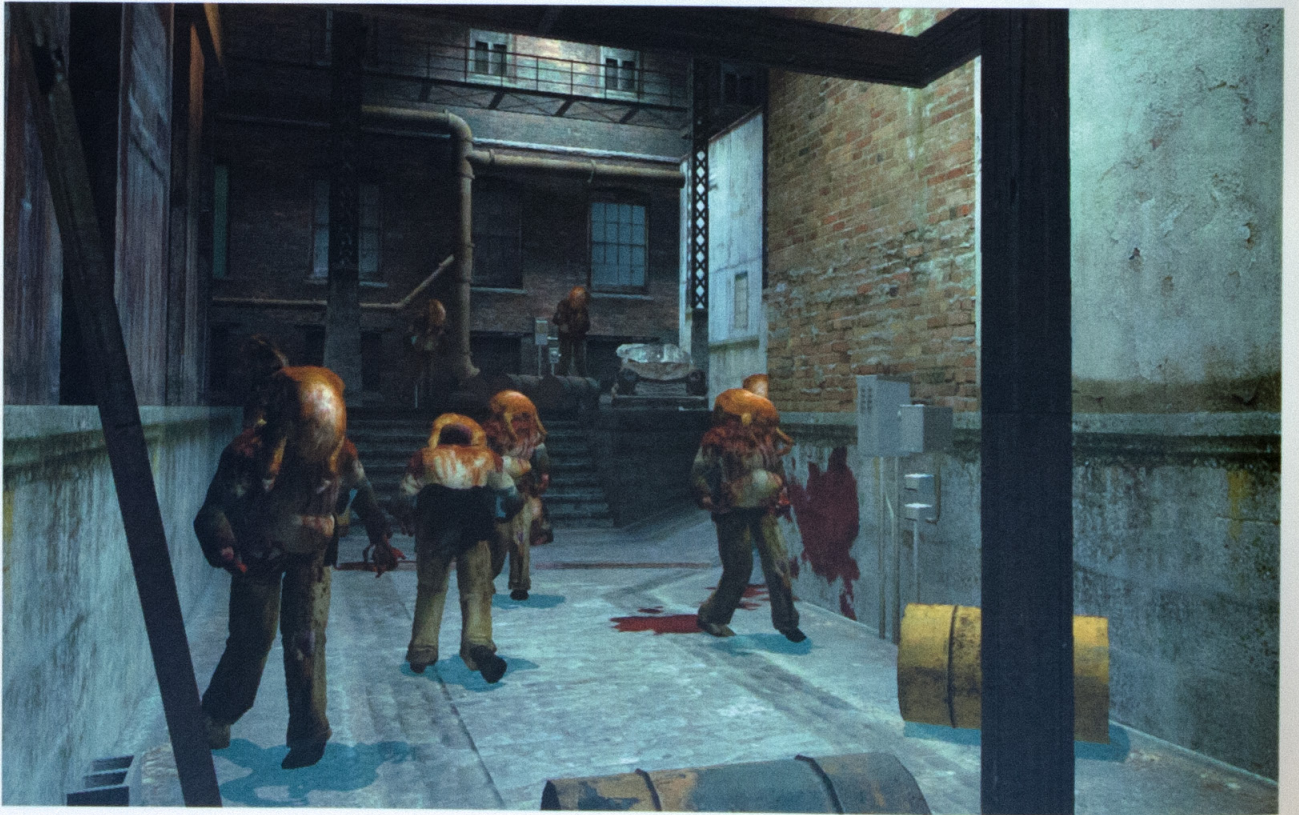


Father Grigori meanwhile, has been setting up a series of fiendish traps throughout the narrow alleyways of the settlement after watching his parishioners don headcrab headgear. "This whole process has driven him mad. He snaps, and turns into a man with a mission to kill all the headcrab zombies and bring peace to his flock." This provided all the momentum needed "to serve up a 'cameo,' our 'mad monk' character. This is a great area for entertaining the whole science fiction and horror clichés and standing them on their head. I think we've got a lot of mileage out of that."⁵⁶

Erik Johnson agrees: "From a design standpoint, that part of the game really came through. It's also the culmination of physics. That is the end of all the lessons learned in physics, and how we place them in the game. Ravenholm began as, 'We're going to build this really, kind of traditional, spooky horror experience.' A lot of work early on was put into teaching players about physics, trying to limit their ambition and ammunition so they kind of point to physics, and then fleshing out the different things you can do with all the physics."

With the different headcrab zombies, and the graveyard excursion, there was a lot of action packed into a very tight area. "The most difficult aspect was getting it to a point so that players could consistently have fun."⁵⁷ Viktor also made sure Gordon went climbing as well as running: "This was the place where we decided to change elevations. And not only take you away on the horizontal plane but the vertical as well."⁵⁸ >>

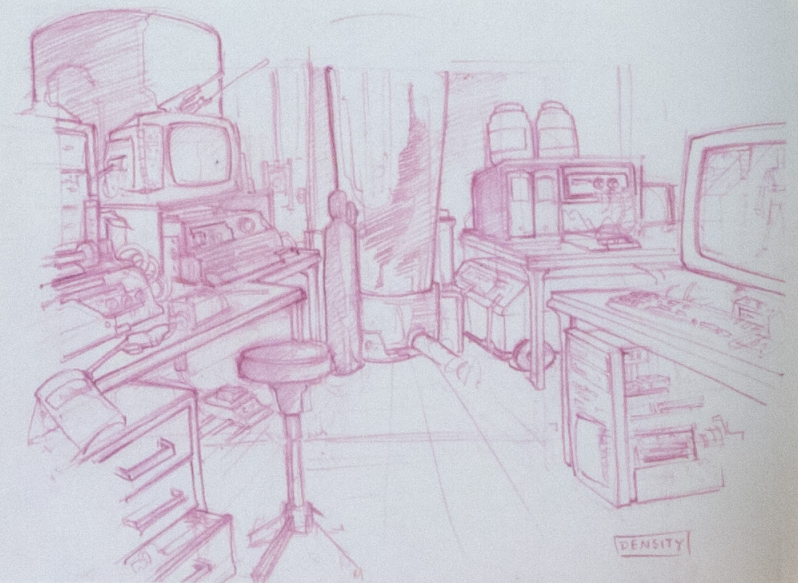
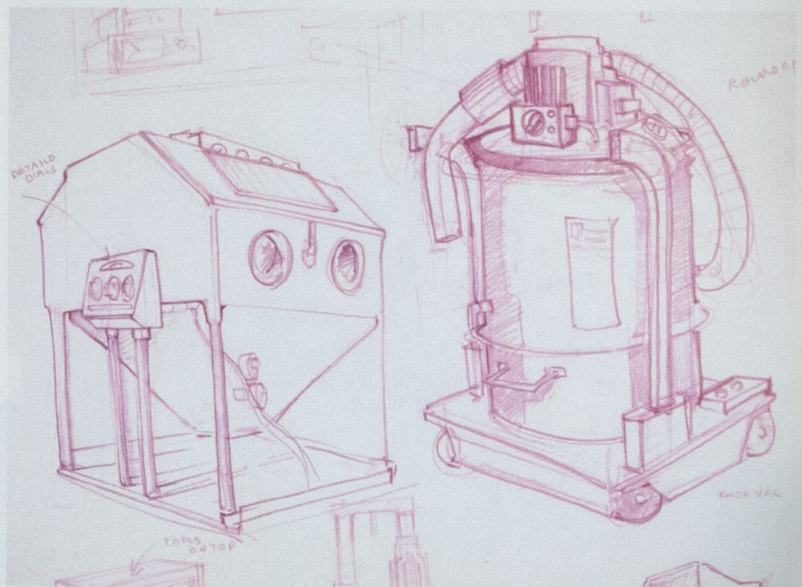
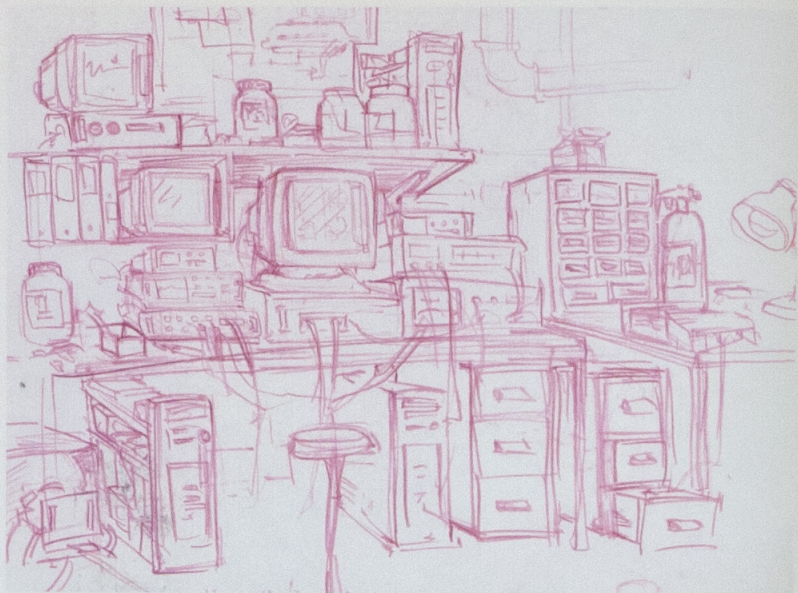
A design sketch for one of Father Grigory's traps





Three concepts for Ravenholm (known in early development as Quarrytown) and two in-game shots of Zombie combat in the final locale

Doctor Kleiner's pet headcrab Lamarr is named after the 1930's actress and accomplished scientist Hedy Lamarr.



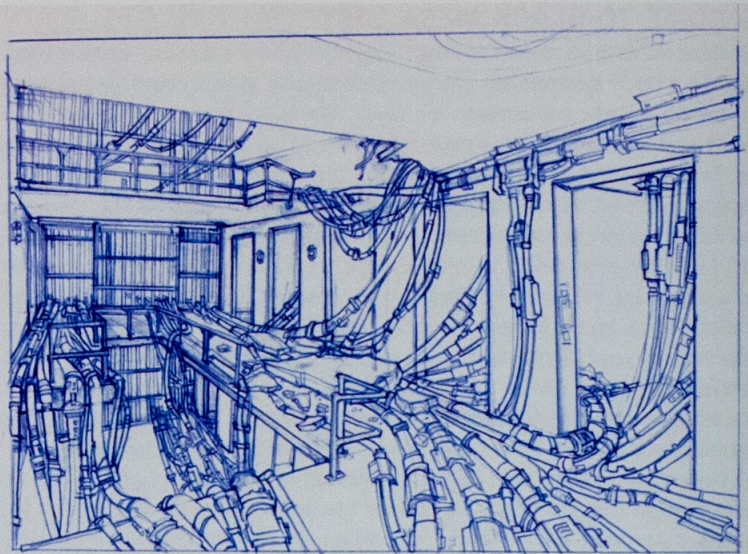
WELCOME TO BLACK MESA EAST

Doctors Kleiner and Vance are also back from Black Mesa. Kleiner inhabits a tiny secret resistance laboratory hidden in a City 17 apartment, with a temperamental teleporter and a de-fanged headcrab named Lamarr. Kleiner's character even permeates into Valve's office culture. Marc has witnessed the issue himself: "It is just a constant thing to hear people walking down the hall, and as they pass we all say 'Hello Gordon.' So like a lot of stuff just becomes imbedded in us, actually, the stuff that I have been listening to a lot lately and on the look out for are the quotes that are going to replace those in the office culture, like some of Hal's lines in the new stuff are so great. But I think 'oh fiddlesticks' is going to sweep the nation! [laughs]. I am always on the look-out for good Kleinerisms. We had a lot of people after E³ asking what Kleiner says at the end. He says 'oh fie!' I thought it was spelled 'phi,' but no, this was Hal's colloquial exclamation. We have to make Kleiner more overt in his archaic swearing. But I had an old chemistry professor that swore exactly like that, so that to me is like the essence of a lab-coated scientist."⁵⁹ *Fie* is a Middle English word used to express distaste or disapproval—mainly by crotchety scientists. Marc has also brought in subtle parallels for players of both games to recognize: "Well, the lady who was doing training announcements at Black Mesa, she obviously has a similar kind of job under the Combine system. I mean, they wouldn't throw away talent like that. Then Mike and Hal carried their characters forward and we pulled others out of the science team and developed them. In *Half-Life* you had Dr. Kleiner, who was just a name in the manual, and now he has a much broader role. He is your mentor. Then there is the Administrator, who is another character who only has a name in *Half-Life* and no one ever sees what happened to him, but because he is there, we can pull him into the program, pull him into the foreground, and use his head throughout the game. At the beginning of *Half-Life* you would never have seen this guy around because he was so much behind the scenes, and he is not to be confused with the G-Man. I think some people think he is the Administrator, the guy in the suit with the suitcase; they are different characters."⁶⁰ The Administrator's name is Dr. Breen. >>

Doctor Kleiner's City 17 laboratory, as concept sketches (facing page) and in the final game



Another concept of the Combine's snaking pipes, taking over the original prison structure



NEW DOG: NEW TRICKS

Eli Vance is holed up deep in a new research facility known as Black Mesa East, which he shares with his daughter Alyx and her hulking robot pet, Dog, who teaches you a new way of playing 'catch.' "I love the classic movie robots," says Marc, "and for me, Dog is a near cousin to Robbie from *Forbidden Planet*."⁶¹ Bill explains Eli and Alyx's early concepts: "We did some Cabals on some of the different people and especially Alyx, trying to figure out what her clothing is saying about her. On a lot of people it's really the story that goes with it. Eli is actually supposed to be one of the black scientists from *Half-Life*. And he lost his leg in the disaster at Black Mesa and he lost his wife. And he's been through it. So that all came from Marc. So, that was their requirements."⁶² Marc threads his story together: "Eli is the *Half-Life 2* version of the scientist who, immediately after the test chamber, works the eye scanner and tells you when you get to the surface. In the intervening years since the 'incident,' he and some of the other resistance scientists who managed to survive and escape Black Mesa have dedicated themselves, now they unleashed these aliens and the Combine, to helping the resistance by offering support, technology, weapons, and whatever they can do. They help run the resistance. They are the key thorn in the side of the Combine as they're technically the kind of people the Combine likes to co-op. Eli is a charismatic figure who's doing something that no one else can do. The other useful plot aspect he reveals is introducing someone new to the universe: Alyx."⁶³

Black Mesa East is another attempt to make a "safe haven,"—one of the three places to rest, engage in chatter, and relax between action assignments. "City 17 doesn't ever feel safe when you get there. The whole point of it is that you're under siege and not sure what the rules are. When you get to Black Mesa East (for the people who played the first game) they should be saying, 'Wow! This is the closest thing to that old place. And this old guy is like the guy that I remember.' It's this whole reunion feeling. That was really obvious in early concept for *Half-Life*, to do this kind of little colony with Eli."

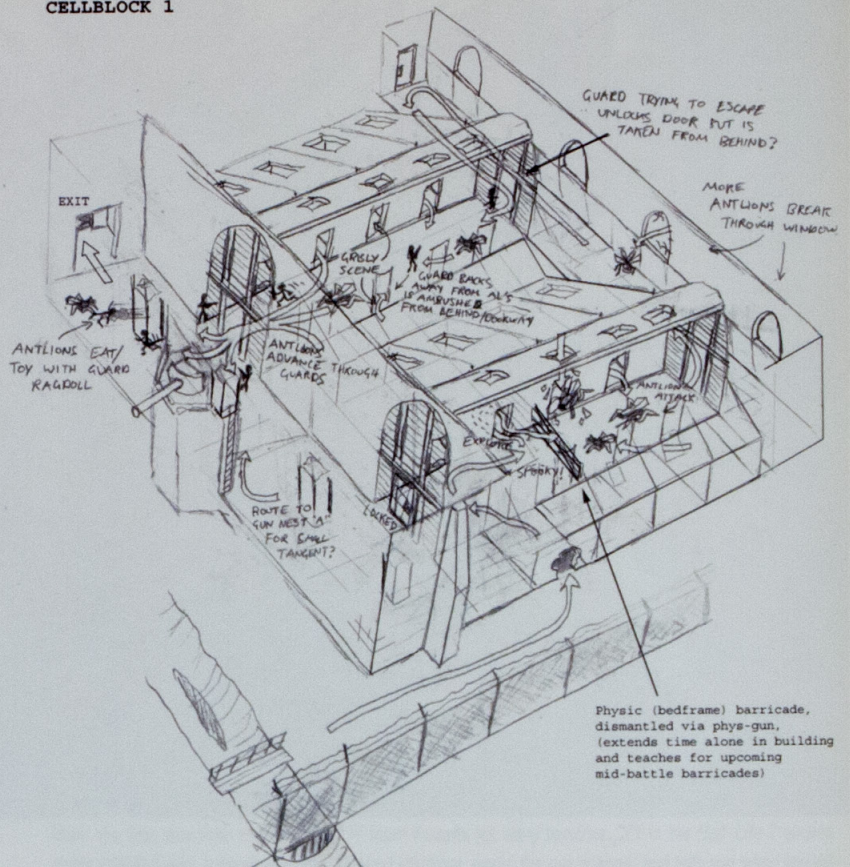
Although Eli was one of the first characters confirmed, his father-daughter relationship with Alyx came along very late into production. Marc explains Alyx's original father: "Alyx's dad was originally a military commander. The resistance had scientists and they had military guys. And there was a Captain Vance who was a separate character." Early on, Marc took the idea to the team that Eli and Alyx were related. "I said 'I think Eli is Alyx's father. And people went, 'No... I don't think so.' And then I put it away for awhile and then again, 'I think Eli is Alyx's father.' And then they thought, 'Hey, that could work.' Marc chuckles. The military father was edited out of the game, and the story flowed better. It works way better and ties in entirely for the scientists' team."⁶⁴ >>



Design renders for Nova Prospect

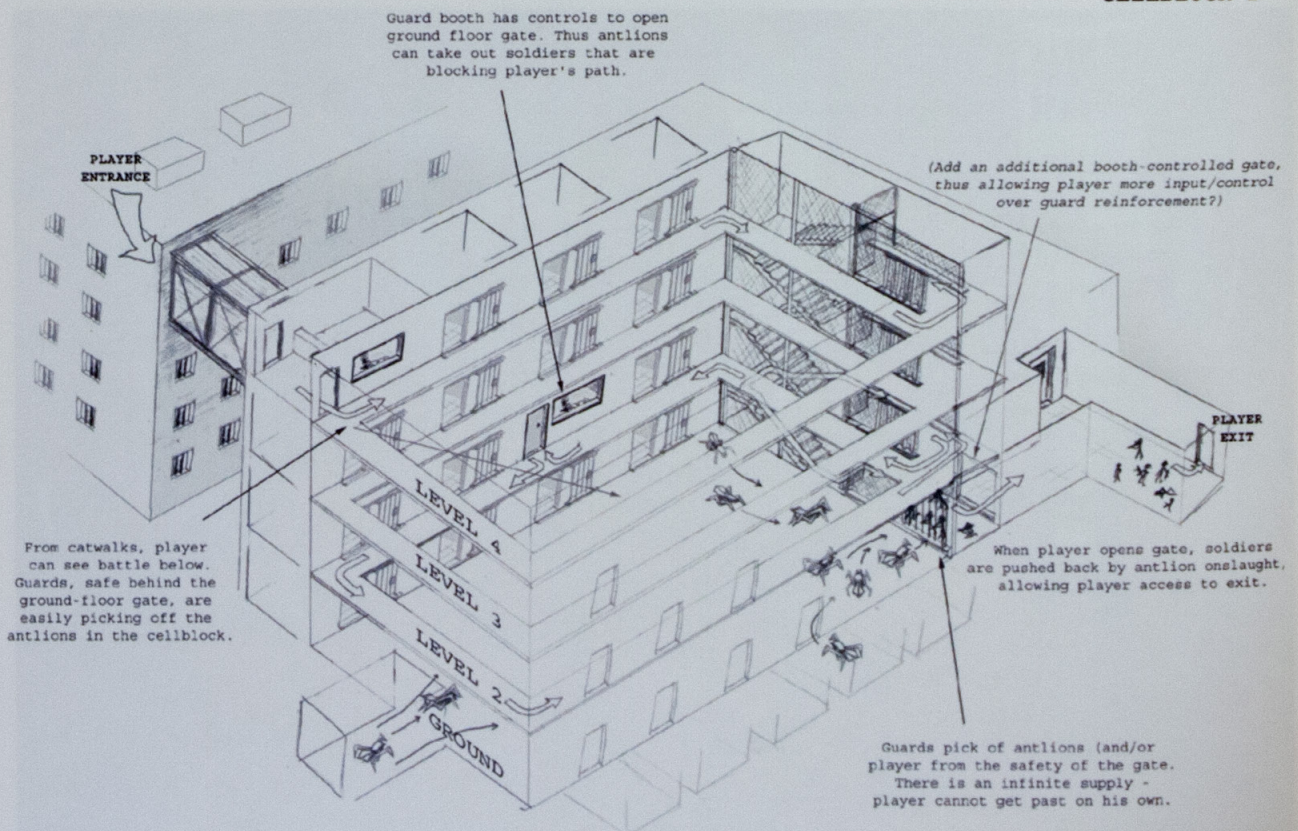


HL2 - Depot
CELLBLOCK 1



Meticulous sketching of Nova Prospect, from the depot point to the cellblocks, showers, and the cafeteria

HL2 Depot
CELLBLOCK 2



HL2 Depot -

CELLBLOCK 3

(MELEE AND BARRICADES)

Cellblock profile

Most battle is happening on ground floor - the top floor provides a breathing space from which to watch and intervene in player's favour, though stray antlions sometime come up the stairs or through windows.

Lower floor is swarming with antlions, but player can pick them off from the safety of the mezzanine/catwalk, thus easing escape through collapsed floor and to level exit.

Corridor split with cart system using barred mezzanine track (see reference)

Med supplies

Player can drop bugbait or grenades onto soldiers below, softening the area before entering via damaged area of floor-bars.

Antlions also enter through windows

Flimsy barricade, can be broken through by bugbait or weapons. Guards inside are being pushed up against it by antlions attacking from rear.

rusty cell doors not always enough... (TO SHOWERS)

Scripted sequence - soldiers erect barricade, only to have antlions burst through ground behind them.

PLAYER ENTRANCE

(LAUNDRY)

If player did not kill or bugbait guards (a) at start of level, they will have to be fought to pass.

empty cells with working doors can be used as antlion containers via bugbait, alternative to combat.

Isolated guards holed up in cells

Soldier ragdoll

Earlier Barricade destroyed and overrun by antlions. (player has to find place to climb/squeeze through)

Med supplies, wounded soldier.

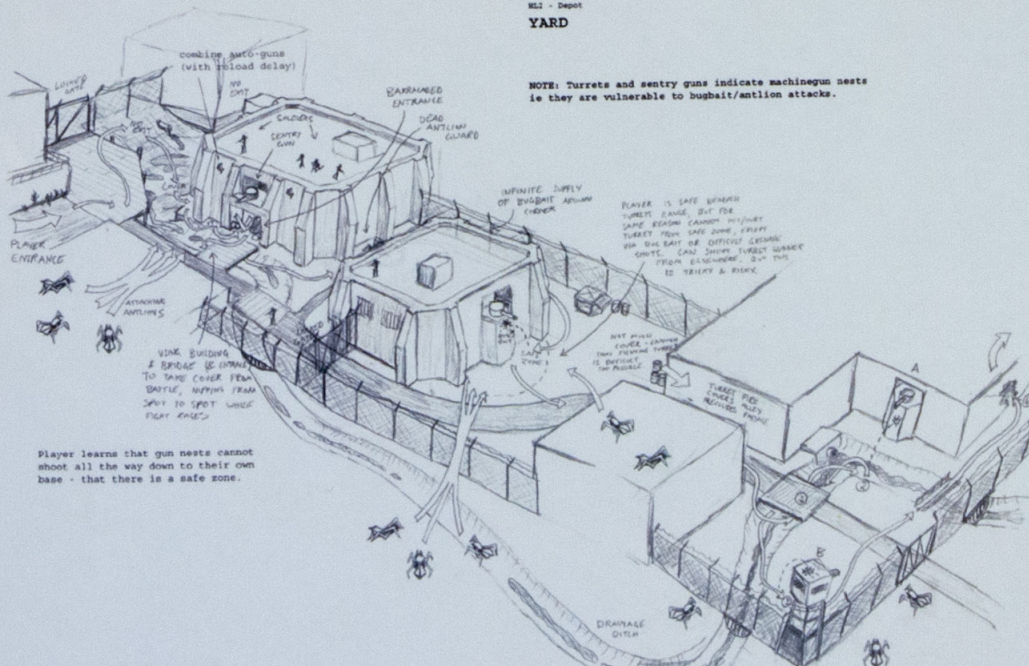
Player has to drop into cluster of soldiers but can use height advantage (and/or bugbait) beforehand.

Guards (a) have backs to player, player is free to ignore them or ambush them

As player comes around corner, antlions break through barricade at end of hall, and overwhelm guards at (b). Player can bug bait guards (a), or a cell or fight through

HL2 - Depot
YARD

NOTE: Turrets and sentry guns indicate machinegun nests ie they are vulnerable to bugbait/antlion attacks.



Player learns that gun nests cannot shoot all the way down to their own base - that there is a safe zone.

- (1) Bridge - shelter from guns, but player cannot see or shoot guns while sheltering
- (2) Ditch - shelter from gun B, and in one area passes close enough to base of gun A that A cannot shoot either. A cannot be seen or shot from safe area, but bugbait is effective, grenades can also work (though are difficult).
- (3) When bugbait/antlions bring down gun A, the ditch then provides cover from B and thus a safe route to the safe-zone base of B. Repeat bugbait attack.
- (4) Once gun B is down, the exit corridor is no longer lethal, player can finish.

A close-up of a prison cell, and a selection of cells being cleaned.



An idea for a power converter that siphons energy to create a barrier



Change of plans: this thing should be hanging from the ceiling...wires spilling out of it that way and it looks better.





The factory area, with its massive energy chambers and almost infinite assimilated workforce. Note the City 17 propaganda posters.



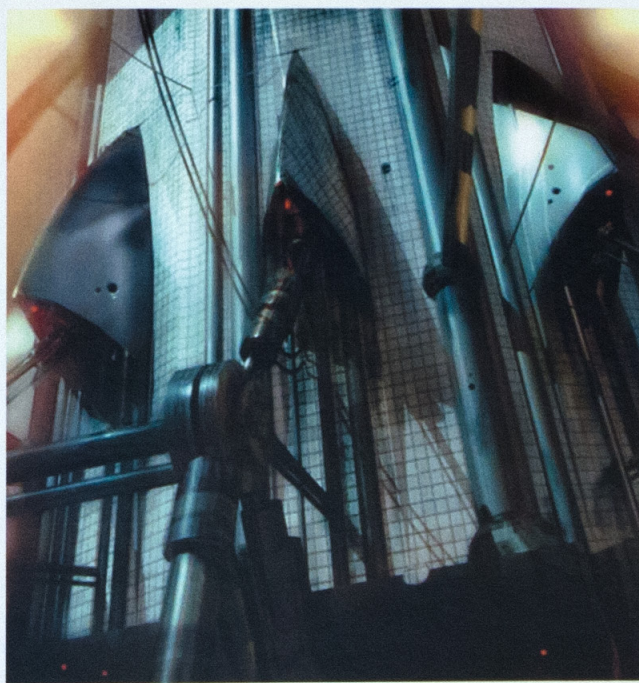
In-game action, with Combine Soldiers battling to quell an Ant Lion swarm

One of the Combine's more alarming creations, known only as the Child Factory

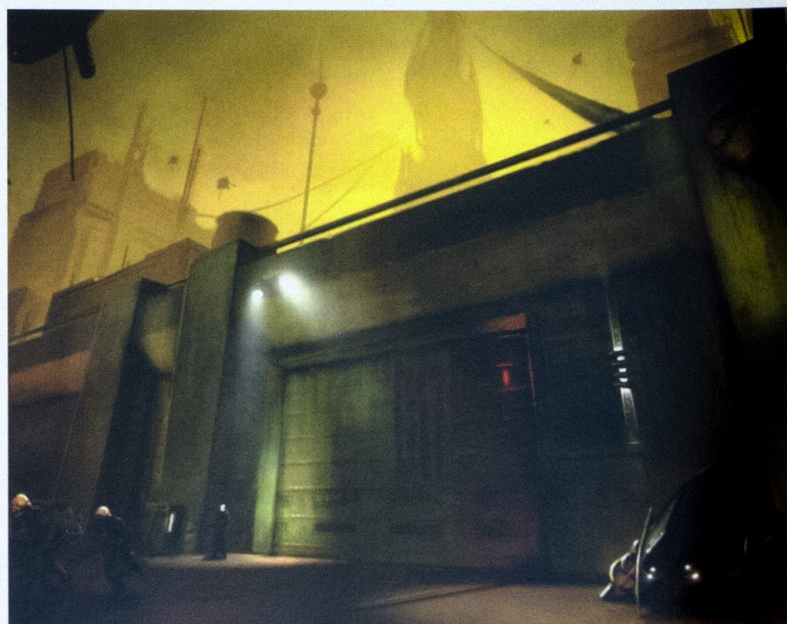
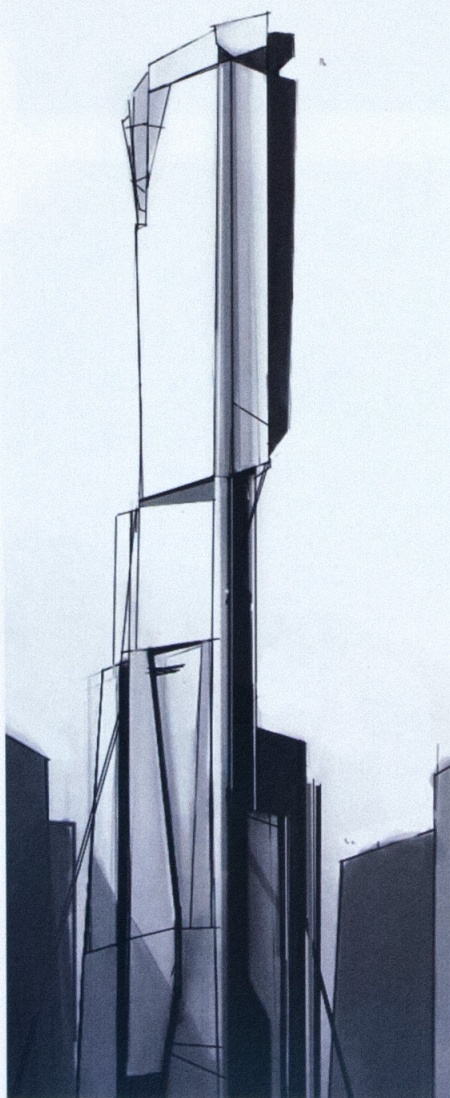




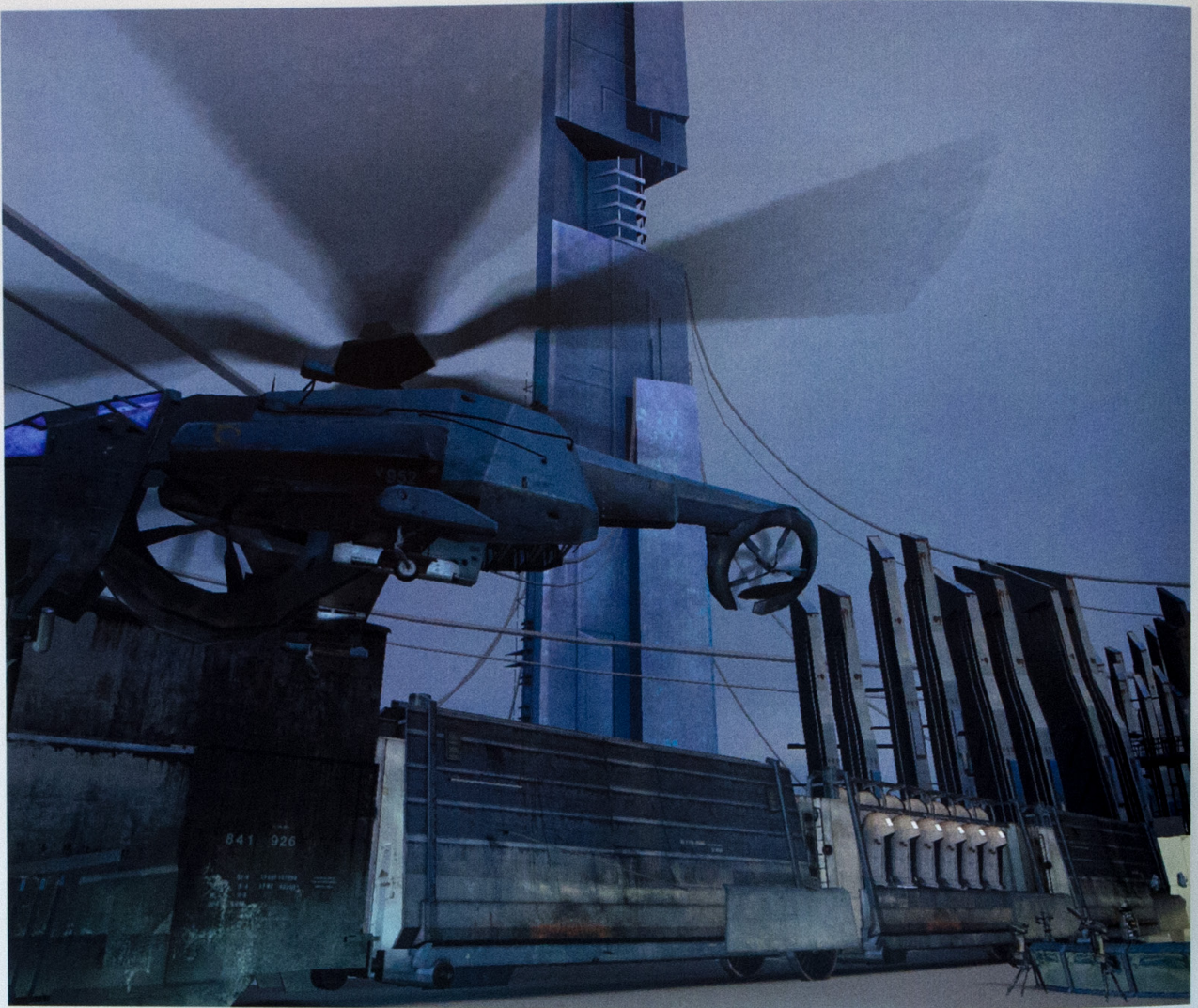
Concepts of the Citadel's power source



Early concept work on the Citadel,
and the structure's perimeter wall







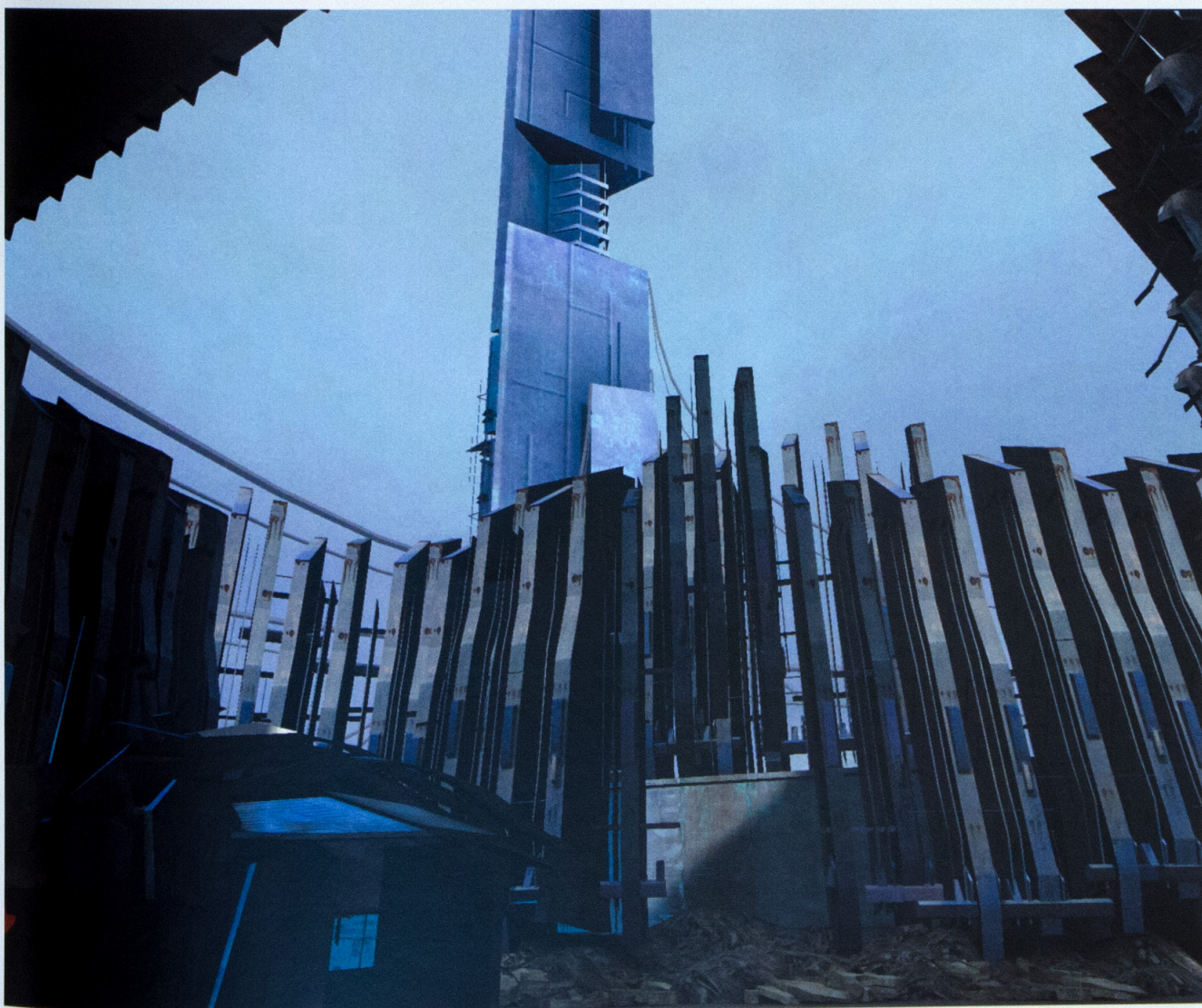
Valve designers use this prop back lot known as the "Combine Zoo" to choose models

THE CIRCLE IS COMPLETE

Getting to Black Mesa East from Ravenholm, and subsequently to the Nova Prospekt prison, is accomplished in a dune buggy, weaving around a number of windswept coastal buildings where you must fend off ferocious wildlife, and Combine soldier patrols are a constant source of fear. According to Marc, these were “places that the Combine let exist for a while because they weren’t doing anything harmful to them, and it was dangerous out there because the wildlife was taking care of humans.”

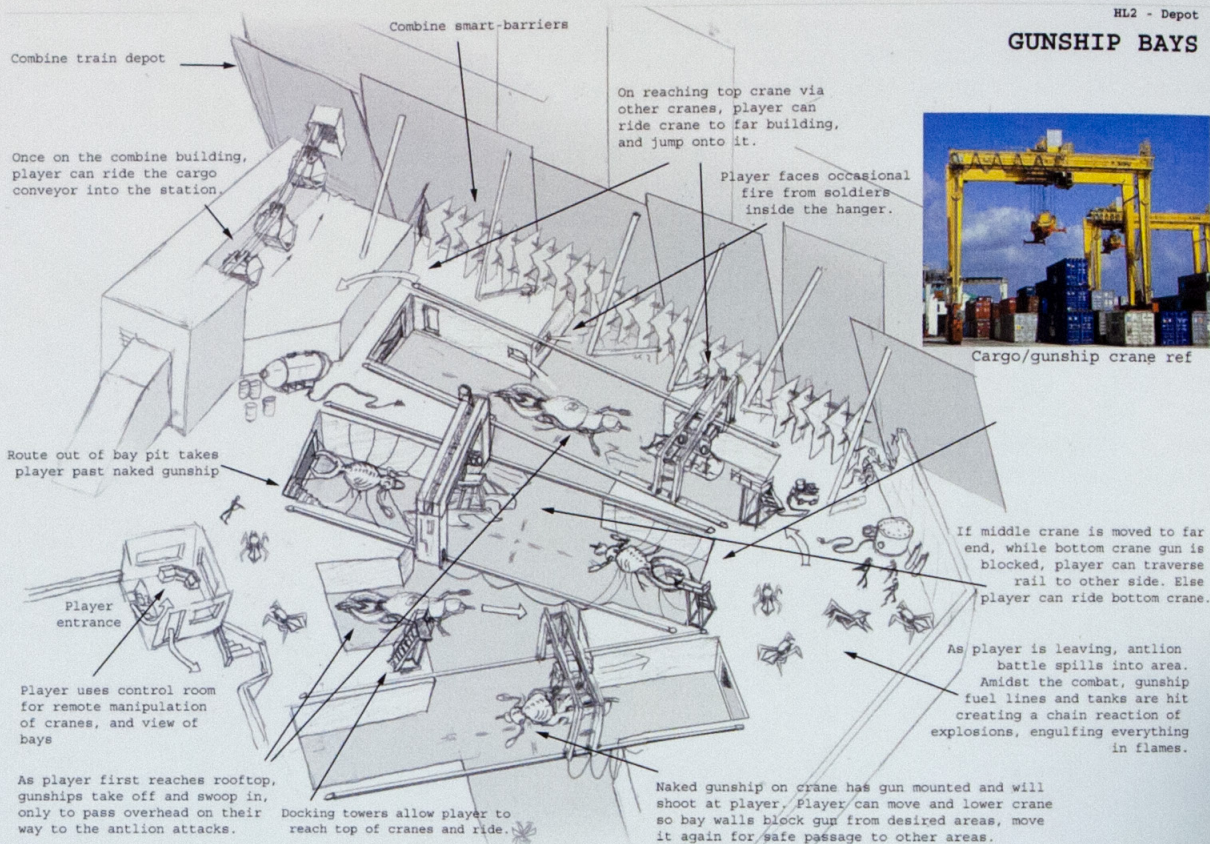
As far as environments go, Nova Prospekt is the apex of the game’s circular route. “This is as far away as you can get from City 17. Nova Prospekt was an old high-security compound turned into a gulag for political prisoners. It’s a place where the Combine takes people for processing and interrogation, and the interesting thing here is watching this old human environment. You can watch the progression in the structures and environments from purely human decay into this elaborate alien Combine technology. We do that through all the areas of the game.”⁶⁵

“In City 17, as you get closer and closer to the Citadel, you see the progression toward greater and greater Combine technology, sort of thrusting up through everything. Nova Prospekt is just another one of those plateau areas in that it’s a power point connected to the Combine. We’ve got this teleport theme running through, so we’ve got particular kinds of Combine teleports, human resistance teleports, and hybrid teleports. They’re experimenting with and combining the two technologies. Nova Prospekt is like going into the heart of the enemy stronghold, and seeing how far you can go still get out.”⁶⁶ After that, it’s back into City 17 for a thrilling series of pitched battles before the unspeakable Combine menace is finally faced at the Citadel. ■

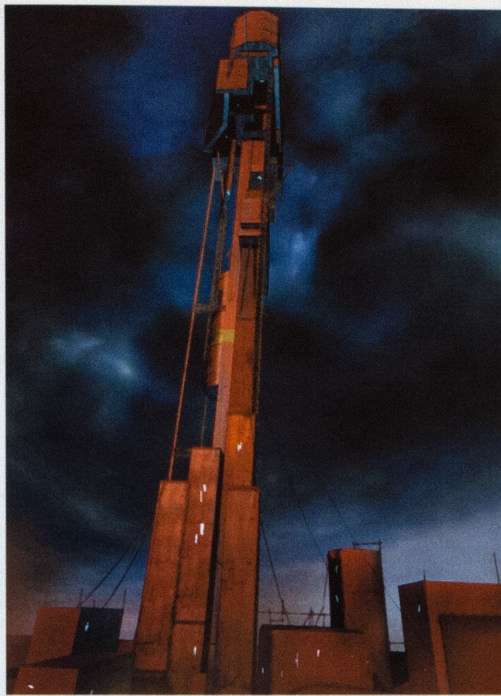


HL2 - Depot

GUNSHIP BAYS

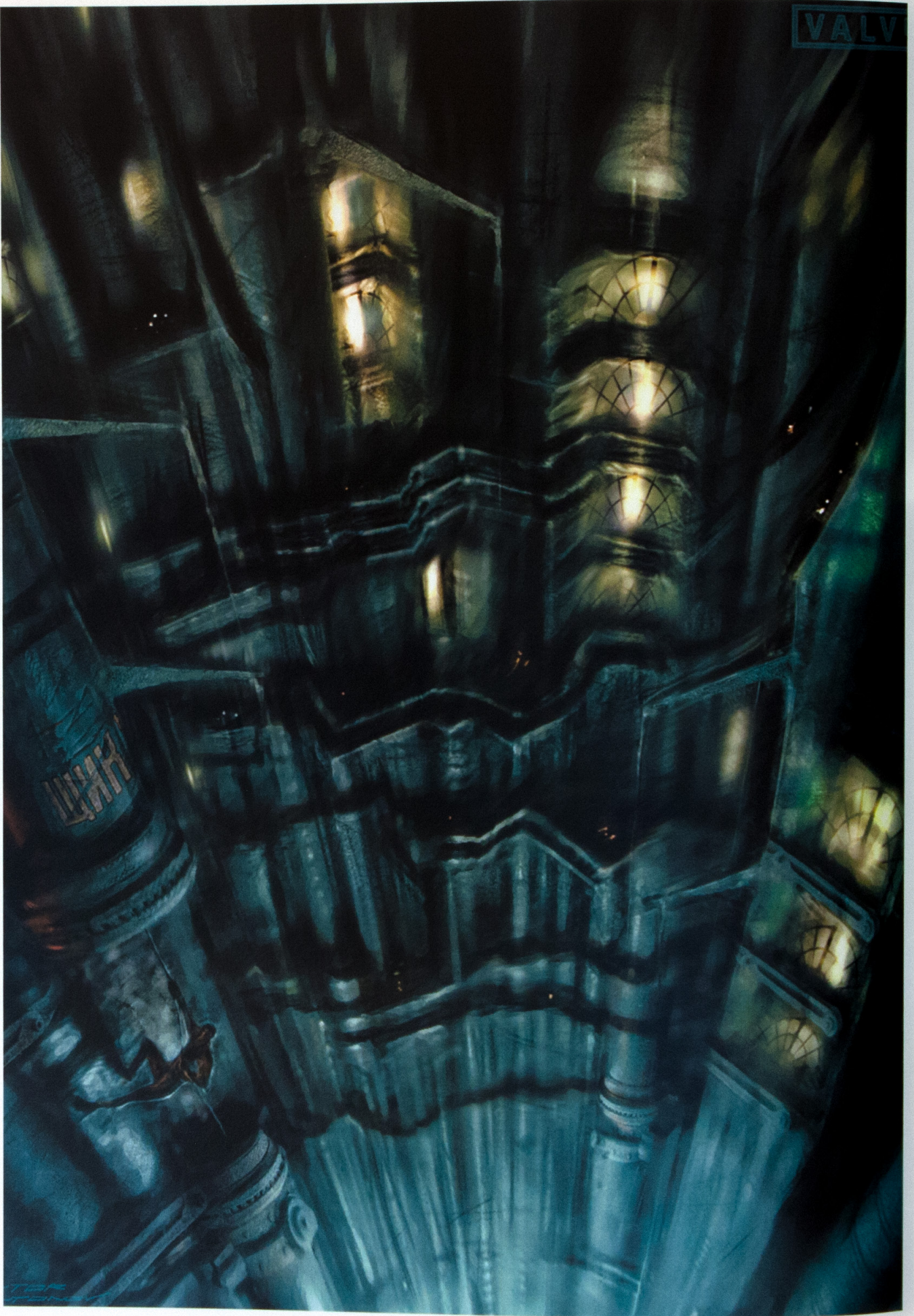


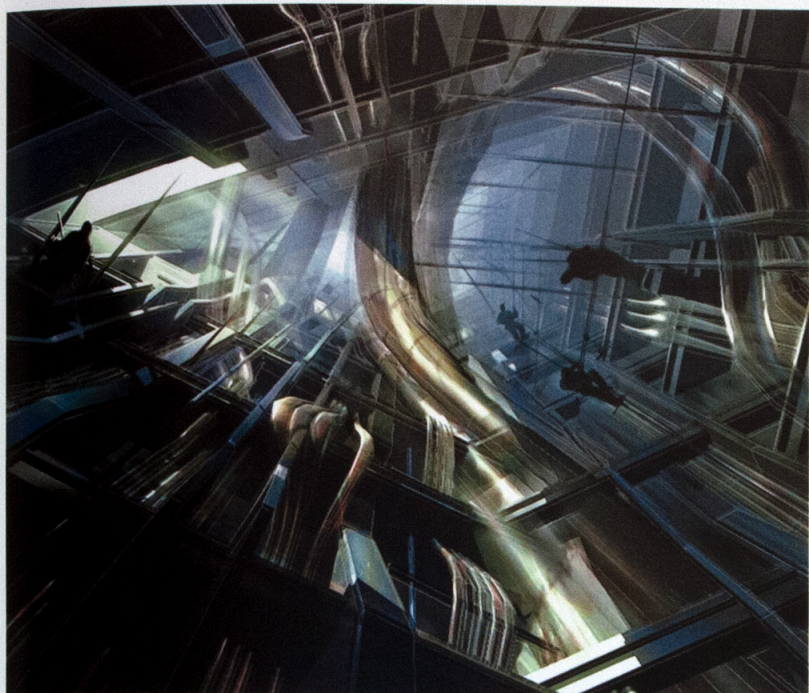
Interior concepts of the Citadel



An early Citadel concept, bathed in red light, from four different angles







Views of the Citadel interior



Gods and Monsters:
Combine Harvesting

.14

“Sometimes on the first sketch I draw something that is an inch across and penciled at two in the morning and that is it; it doesn’t change. Everybody loves it and it just happens like magic.”

—Ted Bachman



The head of the Antlion King, a monstrous entity removed from the final game. The Antlion Guard (facing page) however, did make it.

► TED BACHMAN'S BIG GAME HUNT

This wouldn't be *Half-Life* without a few old friends (and fiends) returning. Ted Bachman runs through the process of converting these entities over, as well as the construction of some of the game's newer creatures. "There were the usual things like higher digital images that described the geometry [of the creature] more accurately. You had a really low detailed geometry originally, and there was a lot of the hard work painting on the surface to suggest more musculature in detail. Now it actually makes my job a lot easier because I can just sculpt the thing as it is and I don't have to try to paint the contours on, or fake lighting on top of it; I can just really focus on making the sculpture of the thing, and then applying the color to the color channel serial, and then defining the shiny parts of the specular channel, and then defining the bumps on top of it."

Ted sculpts by computer and also in clay, and many of his creations peer out of glass bell jars in the nooks and crannies of Valve's offices. His largest clay creation was the ant lion king. "That is definitely not going to be in the game. It was this monstrous ruler of the ant lion colonies. We'll probably put it in another product that we put out. That one was big, and I wowed everybody with clay sculptures that I did. Like this big [spreads hands three feet apart], and it sat on a table, and it had a really dynamic pose, and Gordon is under the foot of it, all squished up...."

With *Half-Life 2*, colorizing the monsters is "a lot less about painting realistically and a lot more about understanding the way materials interact with light and the way things in the real world behave. So, it makes my job as a painter and illustrator a lot easier because I don't have to try to trick people into believing that there are really shapes where they aren't; I can just put them there with geometry and make the sculpture the way it should be instead of the fake reports that I used to have to do with *Half-Life*."¹

Creating beings to inhabit such a menacing mass as the Combine, plus the alien wildlife that broke through after the Black Mesa incident, means multiple monster sketching and numerous revisions. Ted takes us through the process: "I have been so close to this project for five years that I have a strange take on it. Sometimes on the first sketch I draw something that is an inch across and penciled at two in the morning and that is it; it doesn't change. Everybody loves it and it just happens like magic. Other times there have been creatures that have gone through years of revisions and nobody is happy with them afterward."

One of the first entities that Valve agreed upon was the stalker: "A lot of times I get really excited about a concept that has changed, like the stalker, for example. It was the first real design that everybody kind of rallied around for *Half-Life 2* and said, 'Yes! This is what is going to be in the game.' I thought it was a great monster; it was this kind of nullified amputated human that the Combines turned into a slave labor guy. They rip out all the organs and run them on saline solution so they are easier to maintain."²

Ted also evolved his existing creatures, like the bullsquid (the tentacled dog-like fiend from the first game): "It has evolved significantly; it both swims and comes out of the water and walks, too. It behaves like a crocodile would. It sits in the water and waits for you to get really close, and then lunges out of the water and pulls you in. When we first thought of the bullsquid for *Half-Life 2*, we had it running around the land and it wasn't very interesting. You saw it really far off, this big thing lumbering at you. It was really easy to put your target on it and unload. Eventually, when it got close enough, you just dodged it. But then we started to think about how creatures like this act in nature; you have lunging predators that sit and wait, then leap out and grab at whatever they eat. We made them into a fun monster instantly just by retrofitting a really sick predator behavior. We took that approach and had them sitting in pools of water with most of their body covered up. They just had their eyes poking above the surface of the water and the player negotiated along these edges of these pools. So you never know if the muddy pond that you are walking next to is going to have this giant 12-foot beast jump out and pull you in to devour you."³

Sadly, it seems you will know if a muddy pond is going to have the bullsquid in it; the creature was taken out of the final game, but is likely to appear in a subsequent offering. >>



Vortigaunts, or alien slaves, are back from *Half-Life*; and this time they help the human resistance forces.





2011

BIG MAMA SAID KNOCK YOU OUT

Not all of the aberrations from the Black Mesa mishap have survived, as Ted explains: "You won't see gargantuas running everywhere because they are big easy targets and they would have been killed out pretty quickly. Big Mamas, a.k.a. Gonarchs, aren't going to be running all over the place because they stand out too much, but headcrabs—they can hide in a bucket. That is something you see a lot; headcrabs infest these junk areas and if you lift up boxes, you can find a headcrab sitting under there just like you would if you went out digging around in the woods."⁴

There are more of these archetypal cranium-suckers this time, too. "There is a faster one that kind of looks more spindly. It runs very quickly and jumps very fast, but has very low health. Then there is a black poison headcrab that moves very slowly, but it is able to hide very well because of its color. It leaves you with one point of health, no matter what happens. It is really a scary monster to deal with because you know what is going to happen when you see it coming. It is really slow and you gets lots of warning, and when it sees you, it stands to attention when it gets ready to jump."⁵

Ted also understands the role the human subconscious plays in creating the fear of the unknown, and has designed some of the monsters around this premise: "A lot of times in games, developers play the 'horror card' and try to make something that has big pointy teeth and make it as scary as possible. I have never been satisfied by that; it seems a little too heavy-handed and isn't usually scary. Around here these are called 'whaaa!' monsters; whenever you see something that looks really scary, you go 'whaaa!' Instead of trying to elicit the horror response, I really like to make it more revolting; something that is just disgusting. When you look at a lot of things in nature like maggots, they are a great example of a monster, just revolting, they are not especially scary but they are one of the most horrific things that you can think of if you really watch them. It is that sort of response that I am always trying to play up. Not so much the big nasty beast, but really slimy, revolting."⁶

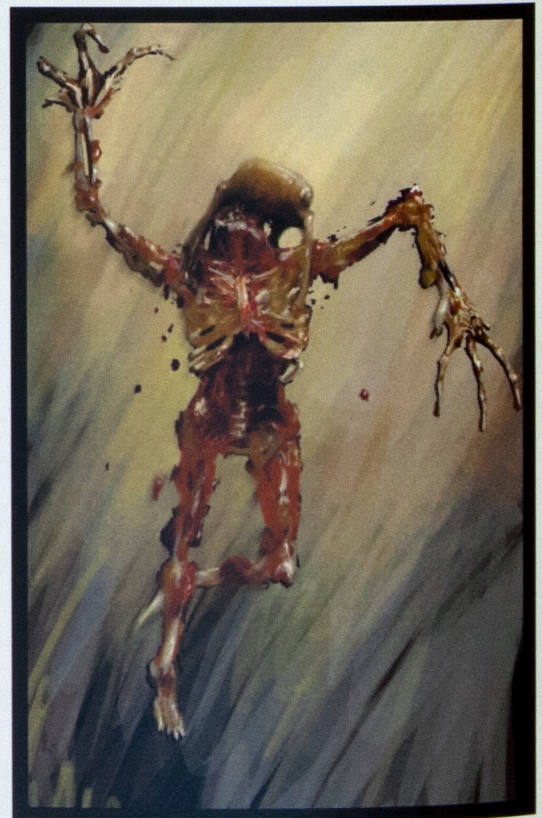
Calling monsters something specific has never been a high priority for Ted, but sometimes entity-naming has an interesting story. "A lot of times the names come from the seed of an idea that eventually bears no resemblance to the final product. I don't know if you remember from *Half-Life*, but there was a multiplayer model of a skeleton that a lot of people were playing with. It was a free download. One of the guys here made a black version of it and used it to hide in levels and it was really just this sneaky bastard, so he thought it might be nice to do this kind of black skeletal character that can hide in dark shadows and leap out at you as you got close and make it a really scary horror monster. So, this stalker idea came more from just having something that kind of crept around in the shadows and then lunged at you. We took a half-baked idea and turned it into something more horrific because the stalkers are really the victims. When you face them, they are these crazed half-human things that you can't help but almost pity. I was hoping to put enough humanity into the things so that it wasn't just a scary monster. Instead it was something that was presented as kind of a moral dilemma every time you had to deal with it, which I think is a more interesting problem. It is more horrific to have to deal with an insane hostage than something that just wants to eat your brains."⁷ >>



An early sketch for a headcrab-less zombie



The barnacle, a nasty ceiling-dwelling mouth with a snaring tongue, is one of the original *Half-Life* monsters that survived.





In-game combat against two new foes, the poison zombie and the fast zombie, both with new headcrab variants



Sacktick

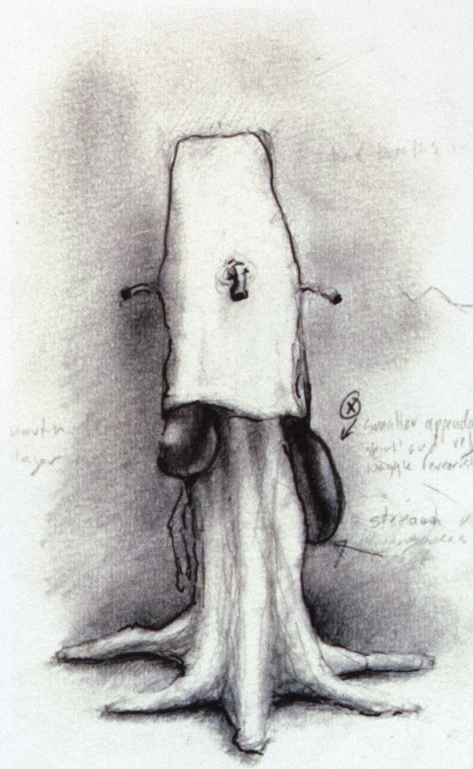
Sackticks are macro viruses, created by the same race that engineered the hoard. Sackticks are delivered by missile like pods and are generally used to soften up an enemy position before an all out hoard assault

Sackticks seek out organic hosts, on which they feed and use as food for the next generation of sackticks. In this way, a small number of ticks dropped into a enemy stronghold can multiply and create a withering number of individuals.

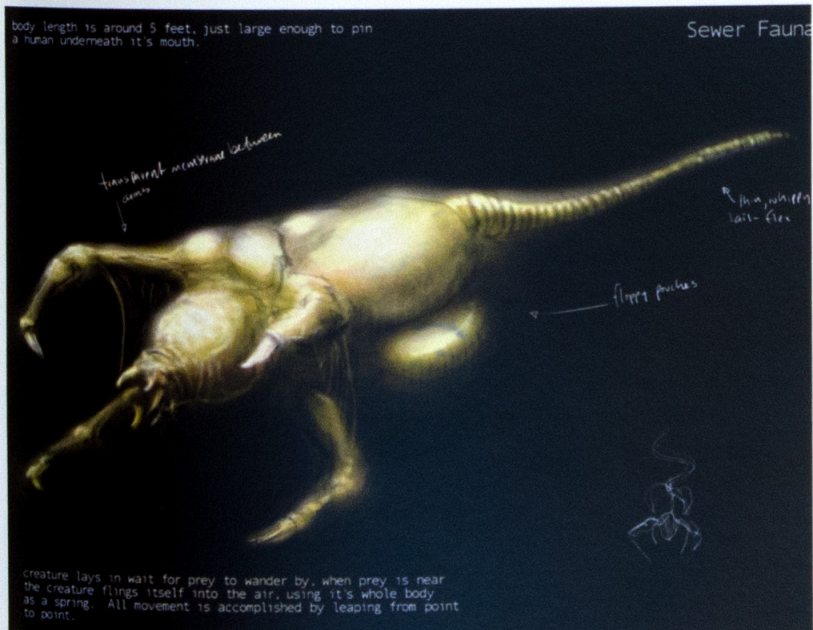
Mouthparts are able to splay open, as part of a threat display. In addition, the sacktick makes a clicking buzzing noise while bobbing it's body up and down against the surface it's attached to.

sackticks bear hoard markings, denoting delivery vehicle and task group

the sack is kept curled under the tick's body, in this it's empty state. Once fed the sac unfurls behind the legs and is dragged behind the tick



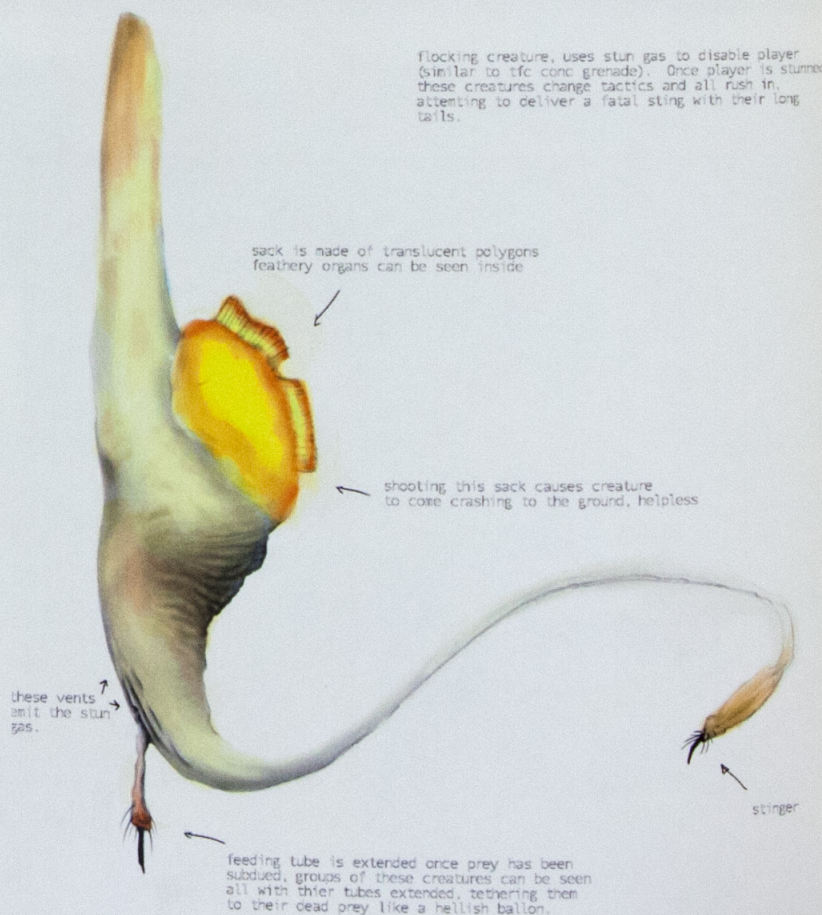
Concepts for alien fauna designs, shelved before the final game release

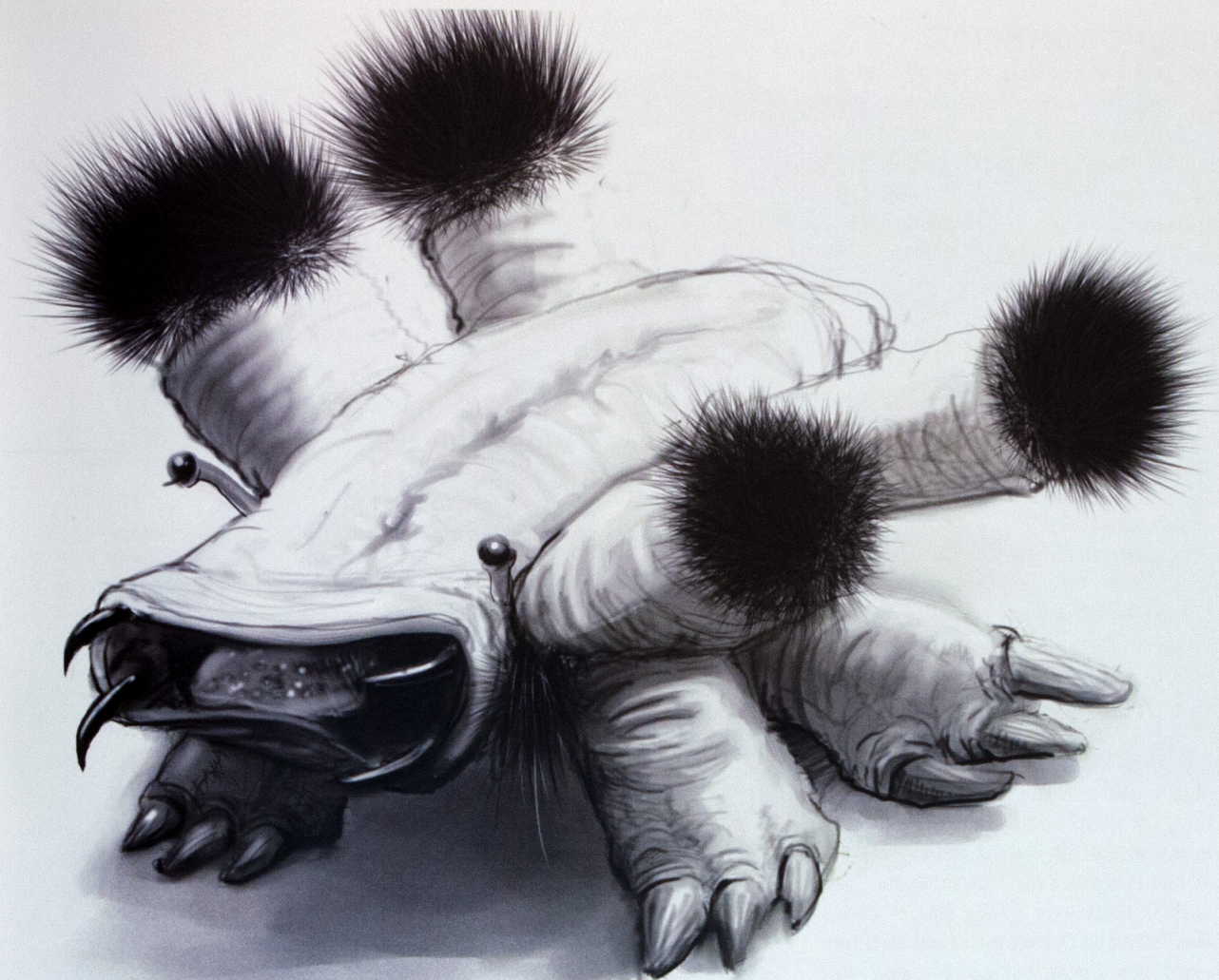


creature lays in wait for prey to wander by, when prey is near the creature flings itself into the air, using it's whole body as a spring. All movement is accomplished by leaping from point to point.



creature moves by hopping from point to point - tries to land on players head - possibly streams some kind of fluid from mouth



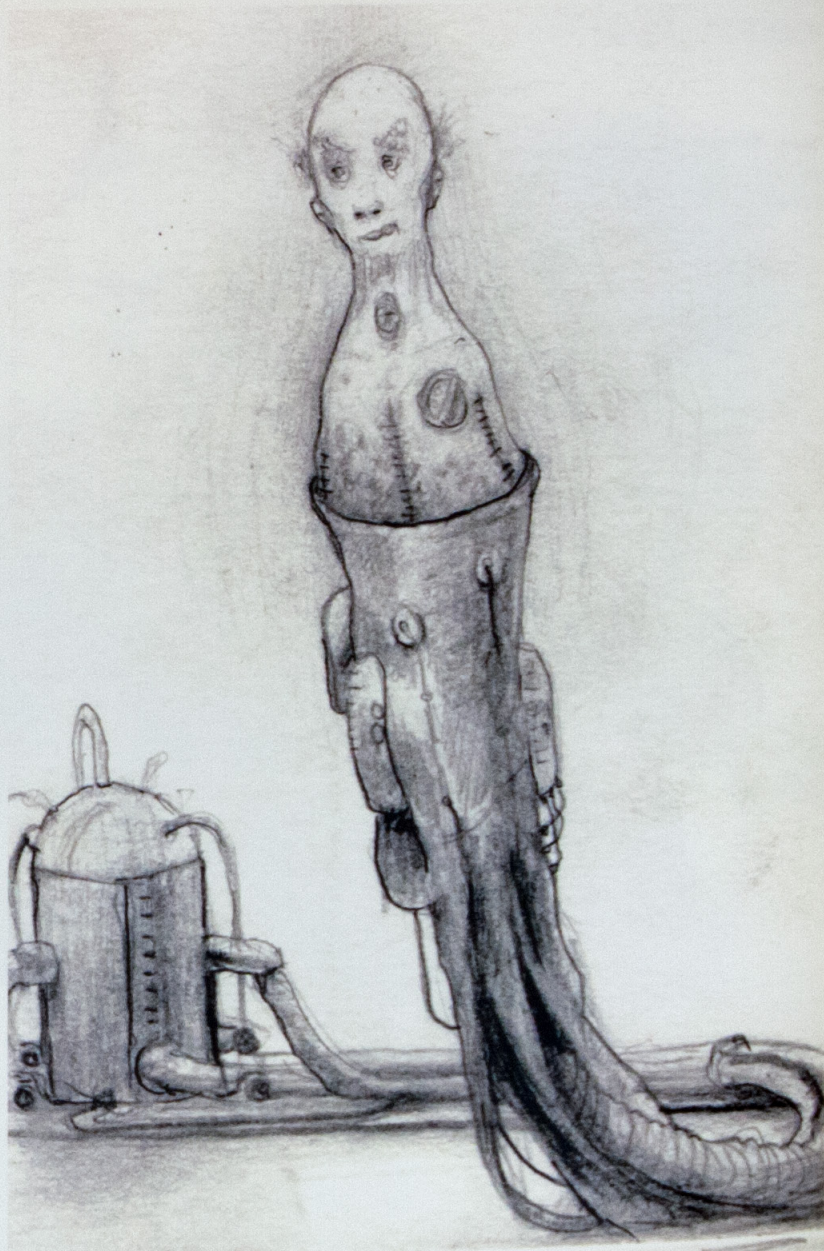


The Stampeder, prior to being cut from the game.

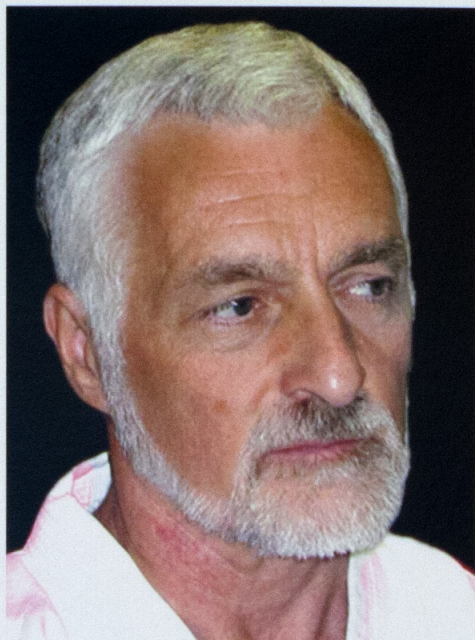
THEORETIC SYNTHETICS

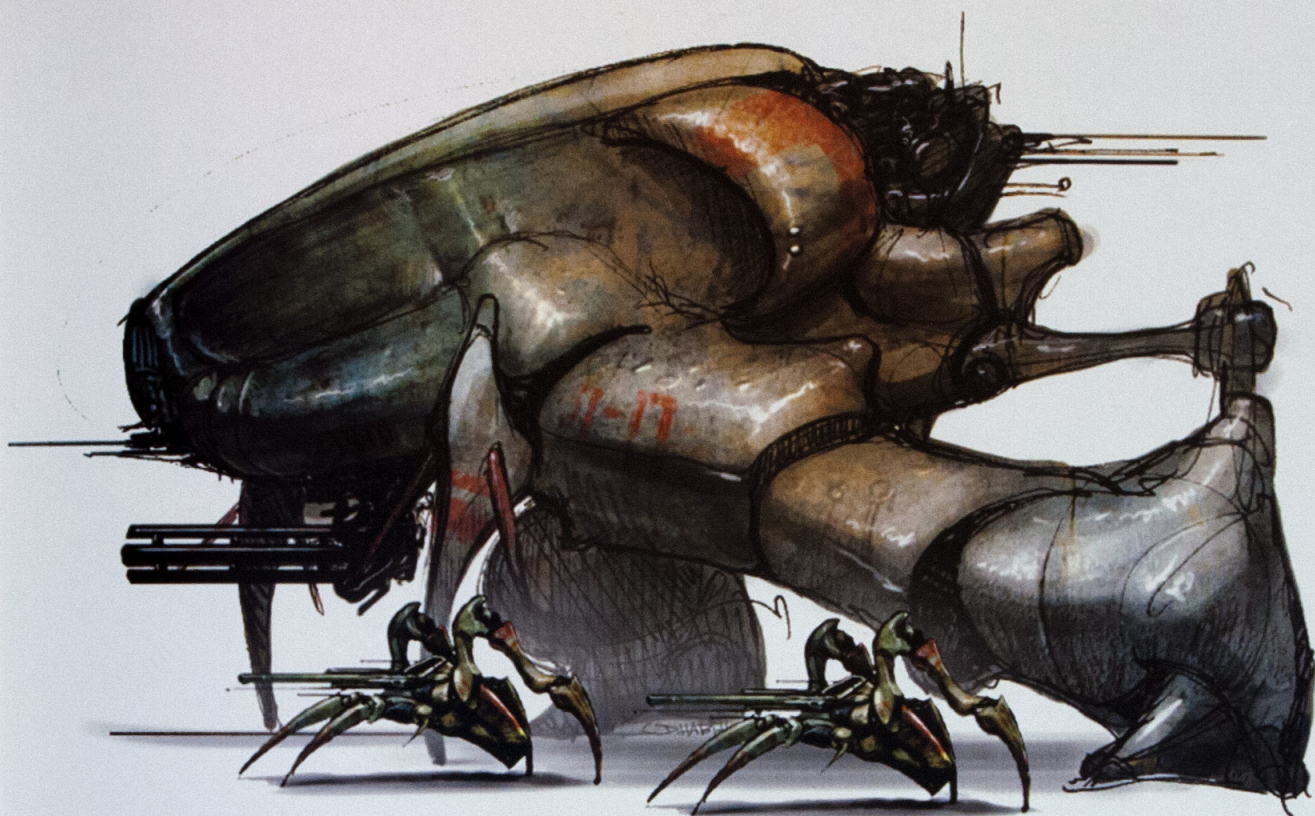
One of the main new alien races in *Half-Life 2* are the Synths, or "Synthetics," an all-encompassing term for the creatures the Combine uses as shock troops for its invasion force. Says Ted, "These were created or were taken over a long time in the past. The idea was to start them off like androids or synthetic creatures that have been enslaved by the Combine through their conquests and wars. They are not creatures at all. They are really synthetic things. They are robots, but they are self-replicating and they evolve. I am really interested in a lot of the synthetic life-form research done in the Los Alamos National Labs where you have little insects, and instead of being hard coded with instructions on how to deal with their environment, they learn and they evolve and they try to serve their own ends and in doing that, you get these emergent behaviors."⁸

"I thought it would be really cool if somebody created a 'thing' that instead of worrying about having to repair, upgrade, or maintain itself, it made a new version of itself every five years. It could evolve on its own and turn into a synthetic life-form that is a lot more useful and interesting to keep around in large numbers as an invasion force. We have been calling them Synths for a while. I guess my inspiration was really from Bishop the android—sorry—'Artificial Person' in *Aliens*. When he got torn open at the end you saw these entrails, but they were obviously corrugated pipes and he saw all this fluid that came out that looked like blood or lymphatic fluid, but it was obviously some sort of hydraulic fluid. I just took it from there and thought, 'Well, what if these things were actually kind of growing themselves?' Maybe the Combine doesn't even really know how to make them anymore, they don't even know where they came from. They can't even maintain; they just keep them as their own domesticated wildlife."⁹ >>

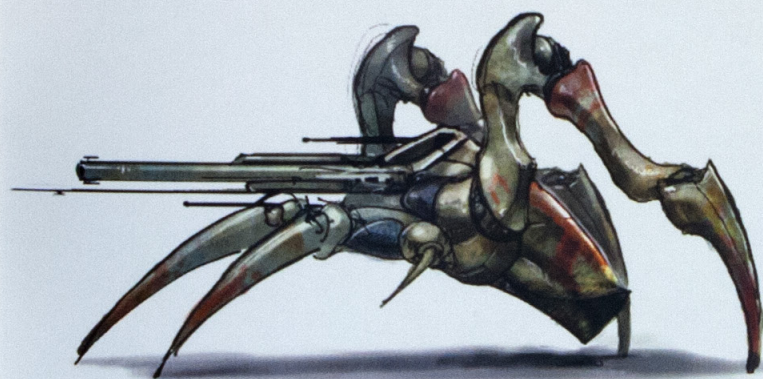


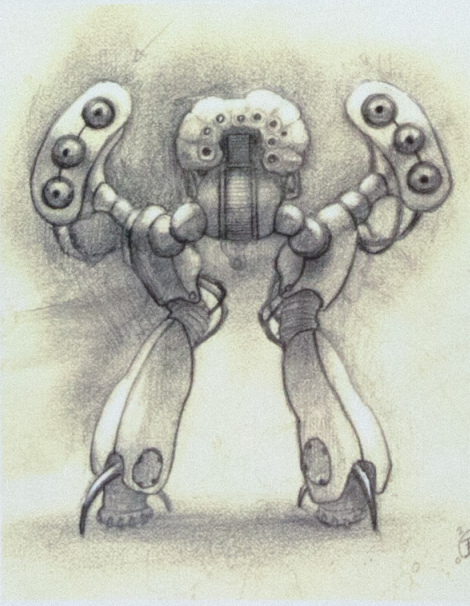
The first concept sketch for Doctor Breen, the photography model, and the in-game result





Two early Synth models, with biological weaponry

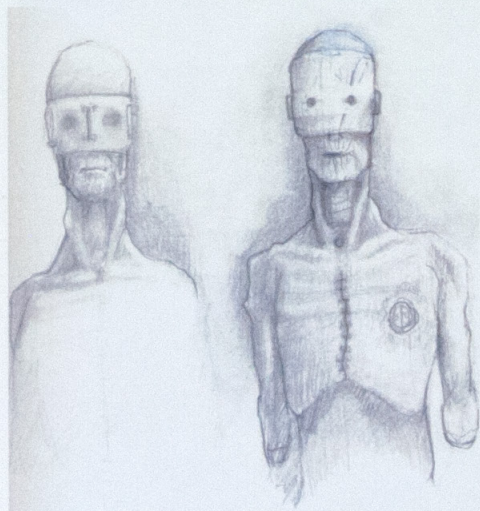




An early sketch of Combine attack and tank Synths, and a final in-game model







The Stalker at different stages of design, including a very early design with a muzzle, later concepts with blinkers (previous page), a near-final design with weaponry, and finally, an in-game model



Wears a blinder and muzzle for ease of control and handling by Cooper. Stalkers are able to lap up fluids through their muzzle.

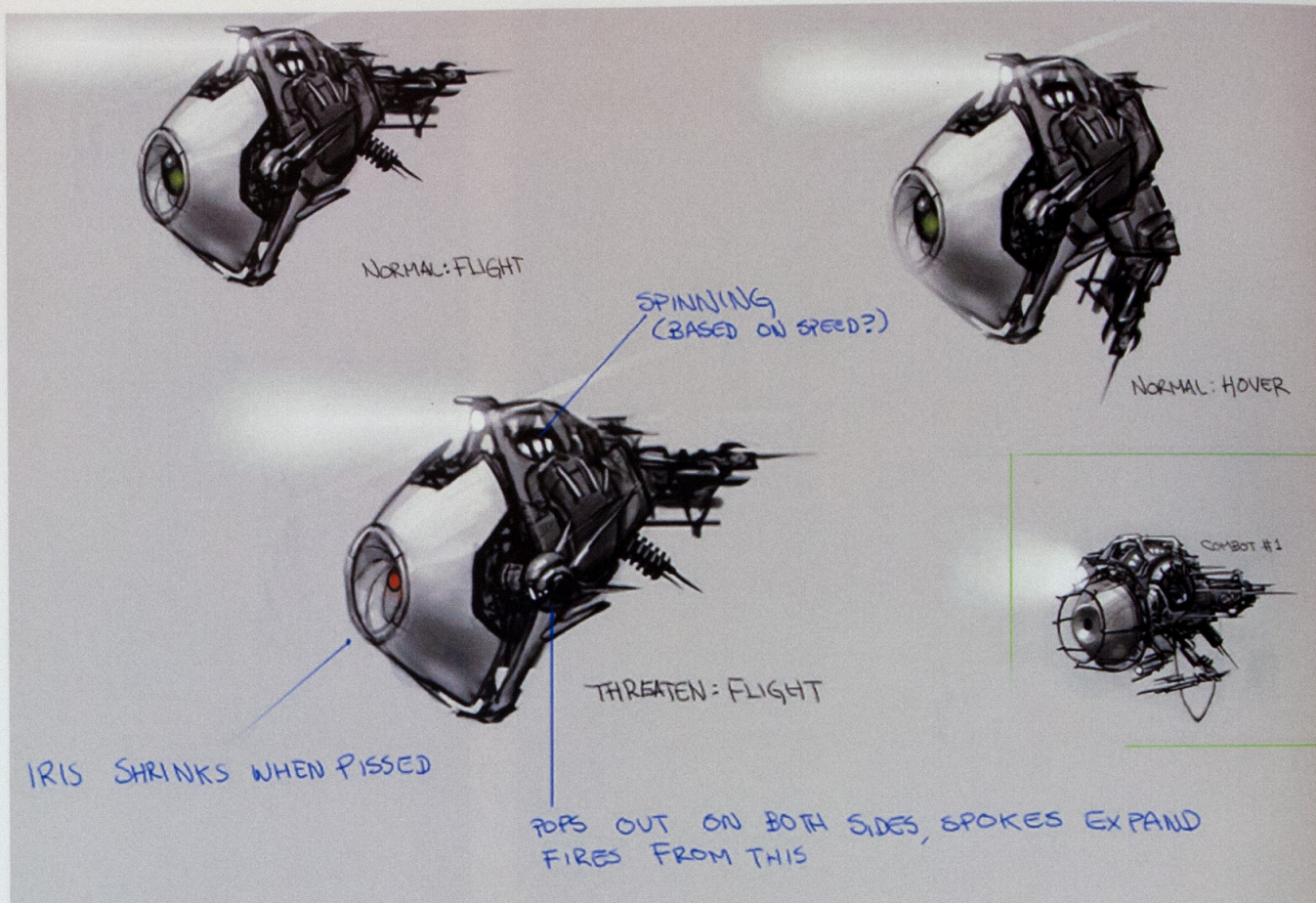
Hands are severed at the wrist to prevent escape.

During the conditioning process the human captives are hobbled to prevent escape.

Once a Stalker is ready to serve, braces that allow walking are fixed to the stumps.

Stalkers are the near dead remains of humans who have been captured and conditioned by





Design renders and final models of Combine Scanners: a menace that relay your location to ground soldiers.

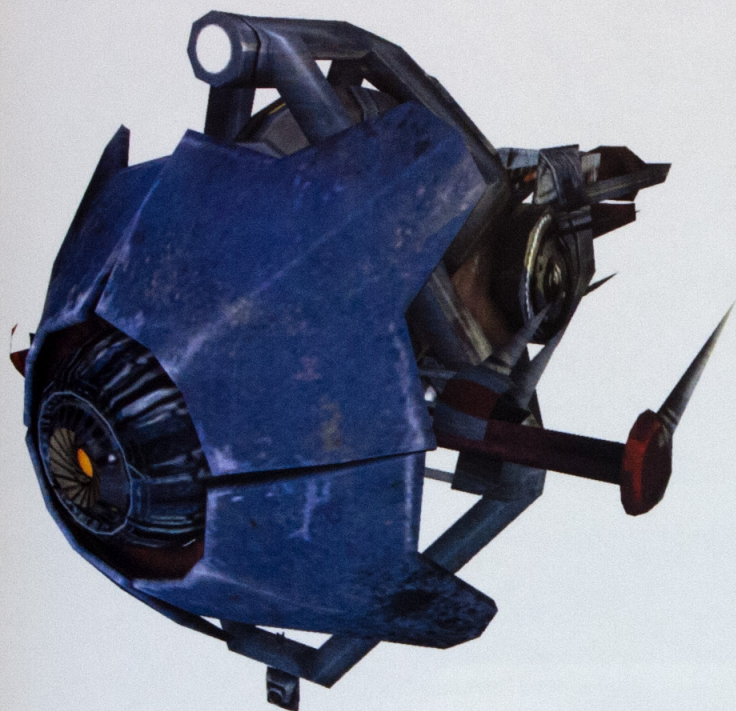


SOLDIERING ON

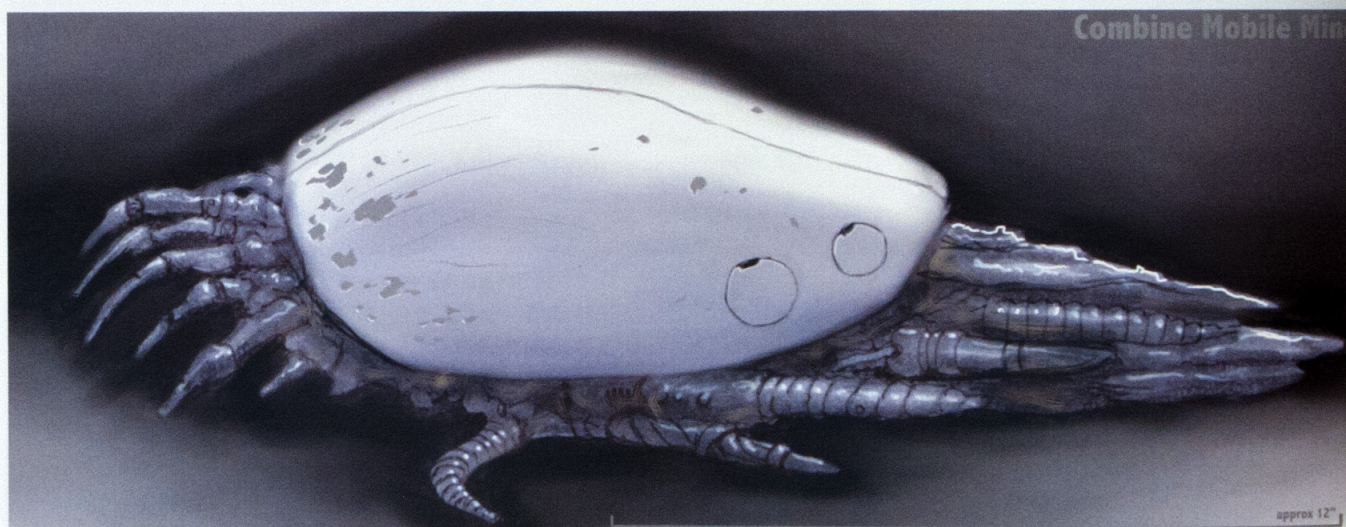
The Combine has its own personal robot units and human soldier squads. Bill had a hand in a few of the monsters Ted didn't create: "The manaxe was probably the one that I was the most involved in creating—just the idea that it would be really fun if we had a small buzzing razorblade thing, like an electric headcrab that would be everywhere, fun, easy to fight. That moved into the Combine art direction."¹⁰

For the Combine soldiers, development continued from the military grunts of *Half-Life*. Ted tells the story: "One of the most fun monsters to play against were the human military. Steve Bond and I worked really close together throughout the production of *Half-Life* to make them something that was kind of unique and it was responsive and that surprised you. So we wanted something that kind of could inherit their role. In this case it is a human, but they have been constricted by the Combine. So, it is less of a creature design and more of a costume design at that point."¹¹

Ted and the team were meticulous in their conceptualization: "If the Combine has access to infinite technology, what are the materials going to be like? Is it going to be like other games out there where they just have metal breastplates and shoulder pads? Is that high tech? It seems to me like that is more like a low-tech approach to body armor. So, in designing the costume for those guys, I was assuming that something like Kevlar or advanced materials would provide a lot of protection without being bulky or rigid. It would be more of a flexible padded outfit that would really be just like wearing a full suit of plate metal. For the body, notice they don't have shoulder pads, which is something that everybody seems to love to put on soldiers in video games. I don't know why. I don't know if they think that soldiers will be tackling people, but I always try to look at all the conventions out there and then figure out if there is a reason for them, or if it is just kind of unnecessary baggage. In designing the costume I wanted something that made sense and that could actually be plausible years down the road. So thinking about advance materials and obviously some sort of head production has integrated sensory stuff, communications equipment, and all that sort of stuff."¹² >>

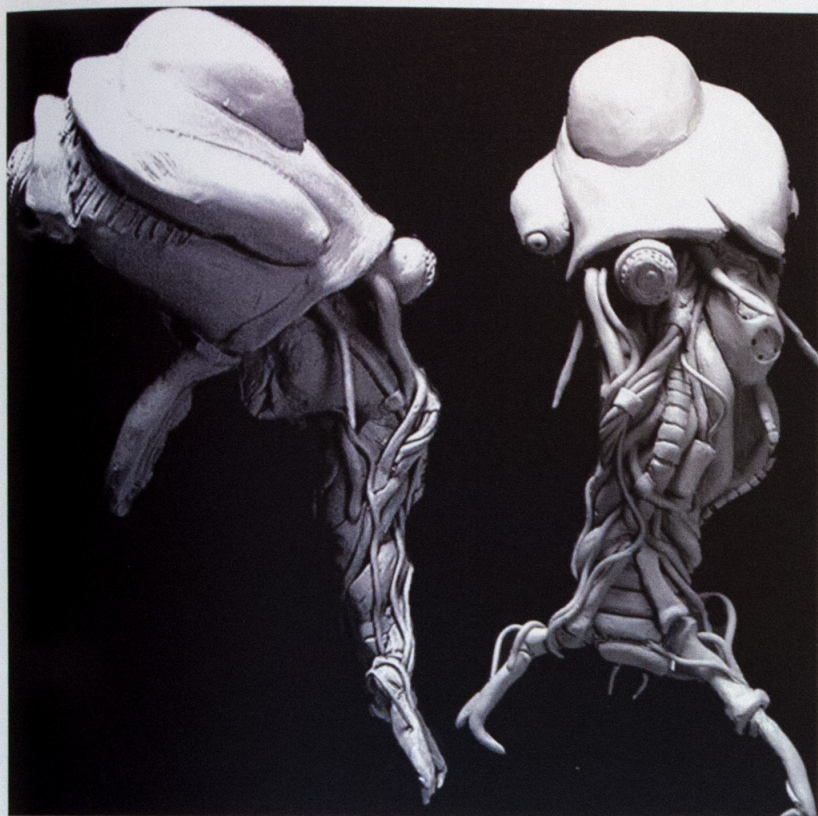


A bulbous Combine advisor concept that appears in the final game

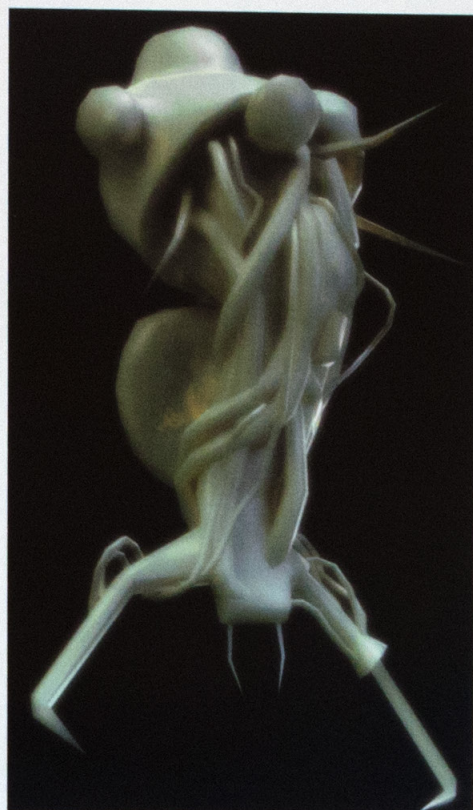


A concept for a Combine mobile mine, and a floating chainsaw known as a Manhack, appearing in the final game

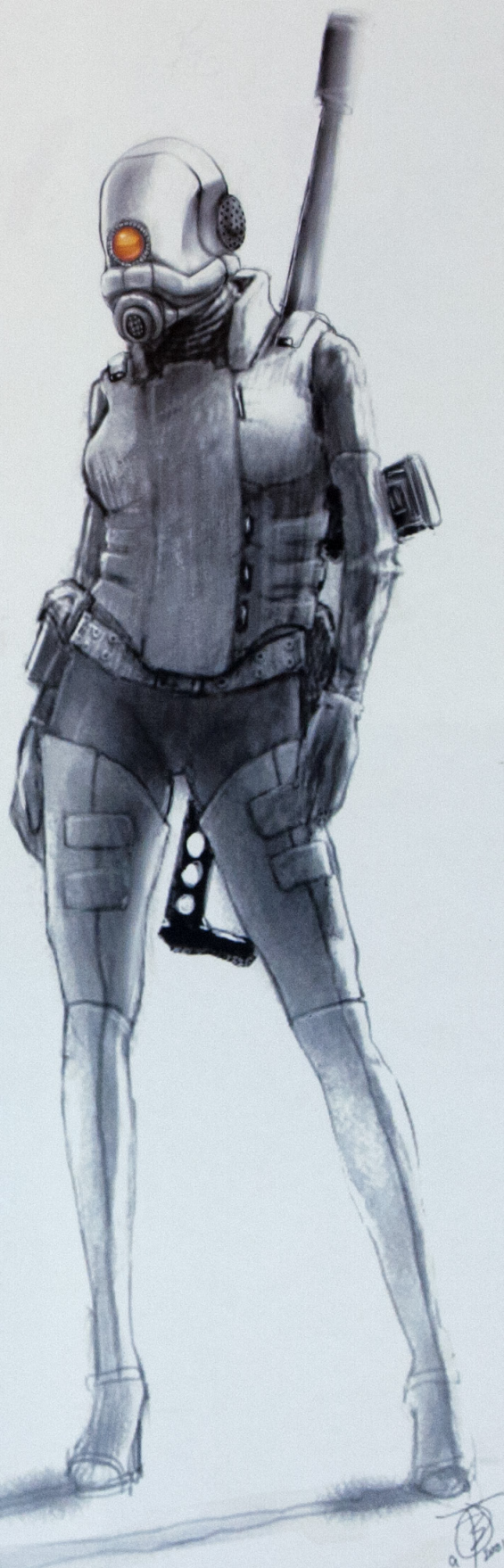




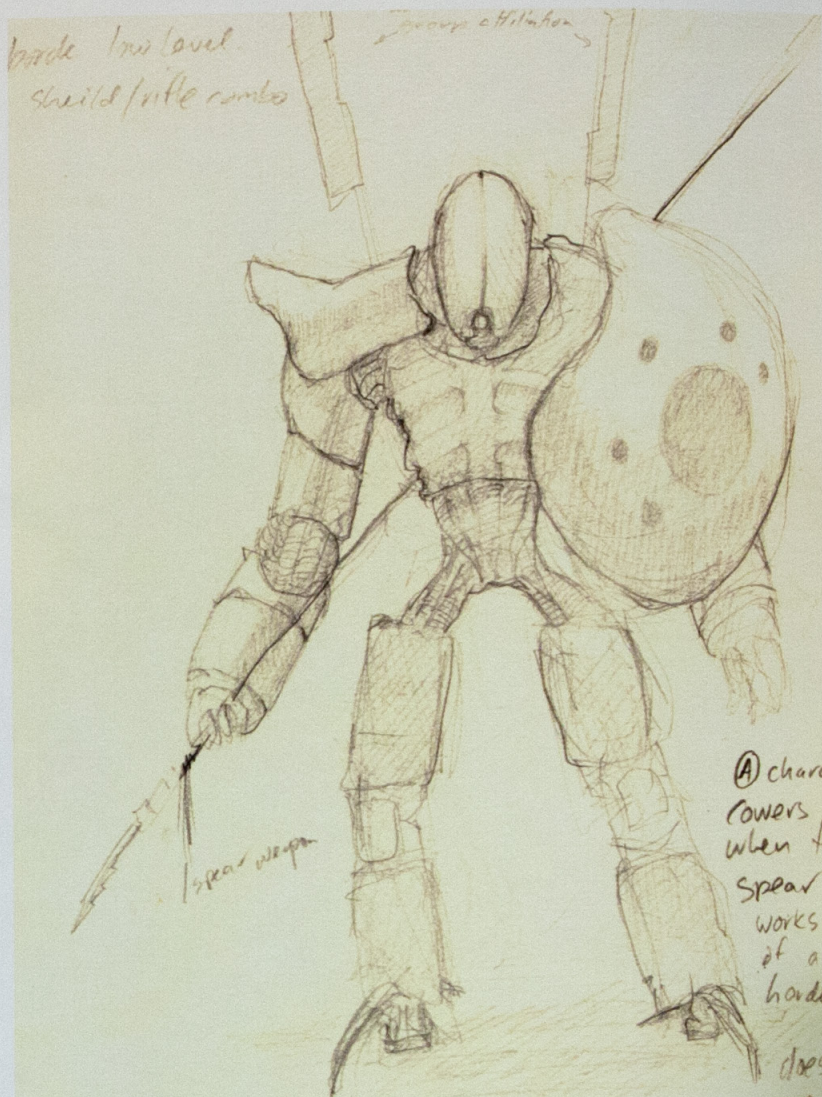
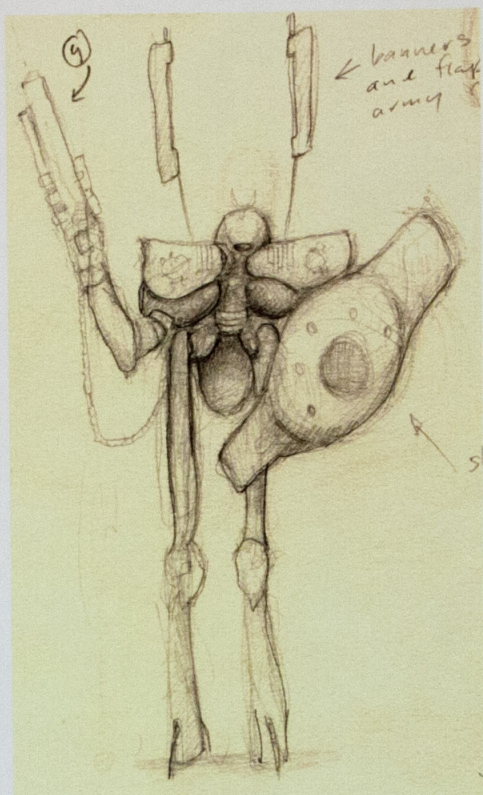
Clay model and concept art of a Shield Scanner, a bio-mechanical Combine troop, and its in-game final version







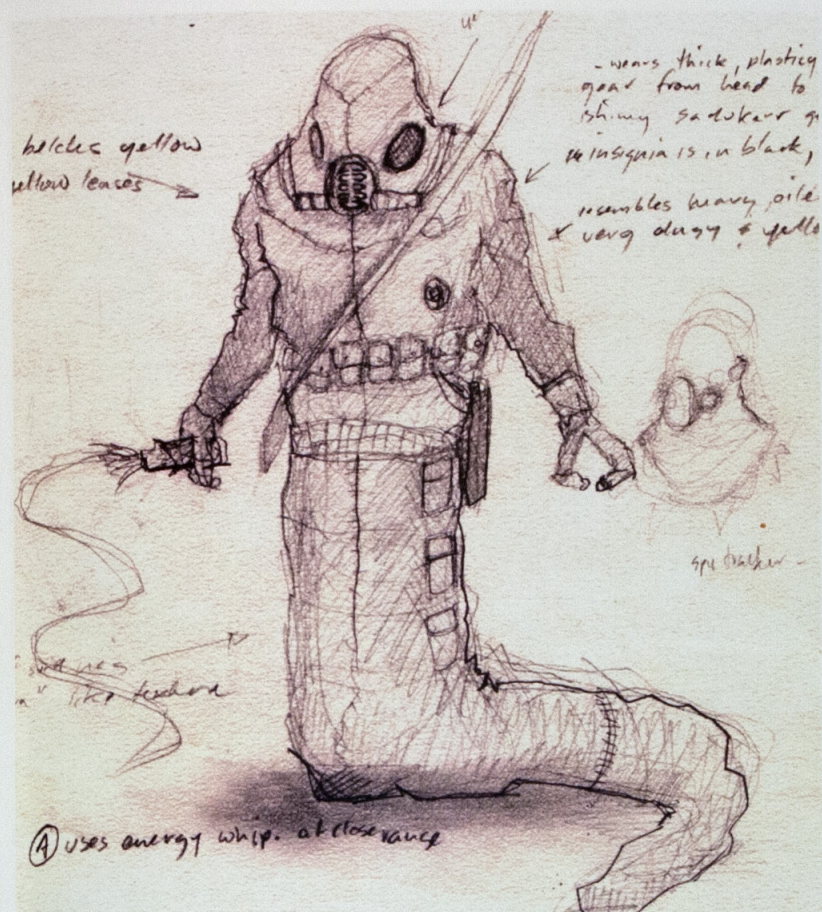
Another one of the Combine's forces to be shelved before the final game was the robot Assassiness. Elements of this being were used during final design of the Combine Elite.



Combine infantry early concepts, with a more primitive motif

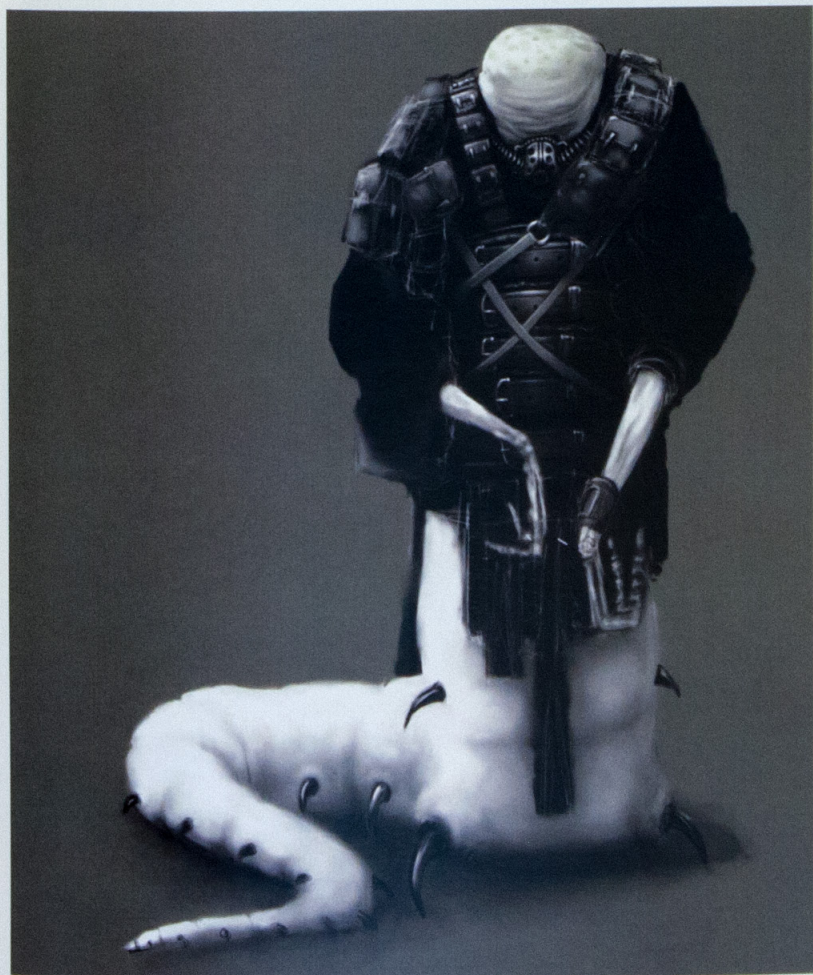


Facing page: Unused Combine alien shapeshifter beings



AD HOC SHOCK TROOPS

After some color treatments, it was decided on how the soldiers would work together. Ted continues: "The squad size can be anywhere from two up to fifteen, but usually in the game you see them in squads of five or six. This makes for a really effective fighting force because they know how to spread out and take cover and they know how to suppress fire. When one of them is suppressed, all the other ones know it is their time to go find cover, flank you, or try to get grenades on your position. This is great because they all don't try to all do the same thing, they know how to cooperate, and they know how to communicate between each other, so it's really nice to see them moving. They actually can shoot flares to call in for support, too. That's one thing you will see a lot of in the game. One of the biggest things that really sets them apart from other game characters is how well they move. They can move in any direction while keeping their pacing, and they can also shoot in any direction while moving in any direction because of the way that we blend our animations together. I remember the first time that Ken Birdwell had that moving system in there and it just looked beautiful. Their arms are always doing something different depending on how they are shooting or aiming or not aiming or reloading so they are really fluid and they look just like people. It is really cool to see them moving around."¹³ >>



The earliest Combine Soldier design, showing the recognizable helmet design



COMBINE CHATTER¹⁴

The next time you play through the game, and you're desperately trying to cut down a squad of Combine cops or soldiers, listen for coded actions the squad commanders yell, based on existing police codes. The following numbers refer to specific actions the team takes after an order:

POLICE ACTIONS

10-0	Use caution
10-2	You are being received clearly
10-3	Stop transmitting
10-4	OK
10-8	In service
10-15	Prisoner in custody
10-20	Your location
10-25	Do you have contact with
10-27	Check for wants or warrants
10-33	Alarm (type: audible, silent)
10-38	Your destination
10-54d	Possible dead body
10-55d	Send coroner
10-65	Clear for assignment
10-78	Send ambulance
10-91D	Dead animal
10-97	Arrived at scene
10-99	Unable to receive your message (or in trouble)
10-103	Disturbance
10-103f	Disturbance by fight
10-103m	Disturbance by mental person
10-107	Suspicious person
10-108	Officer down or officer needs assistance

EVENTS

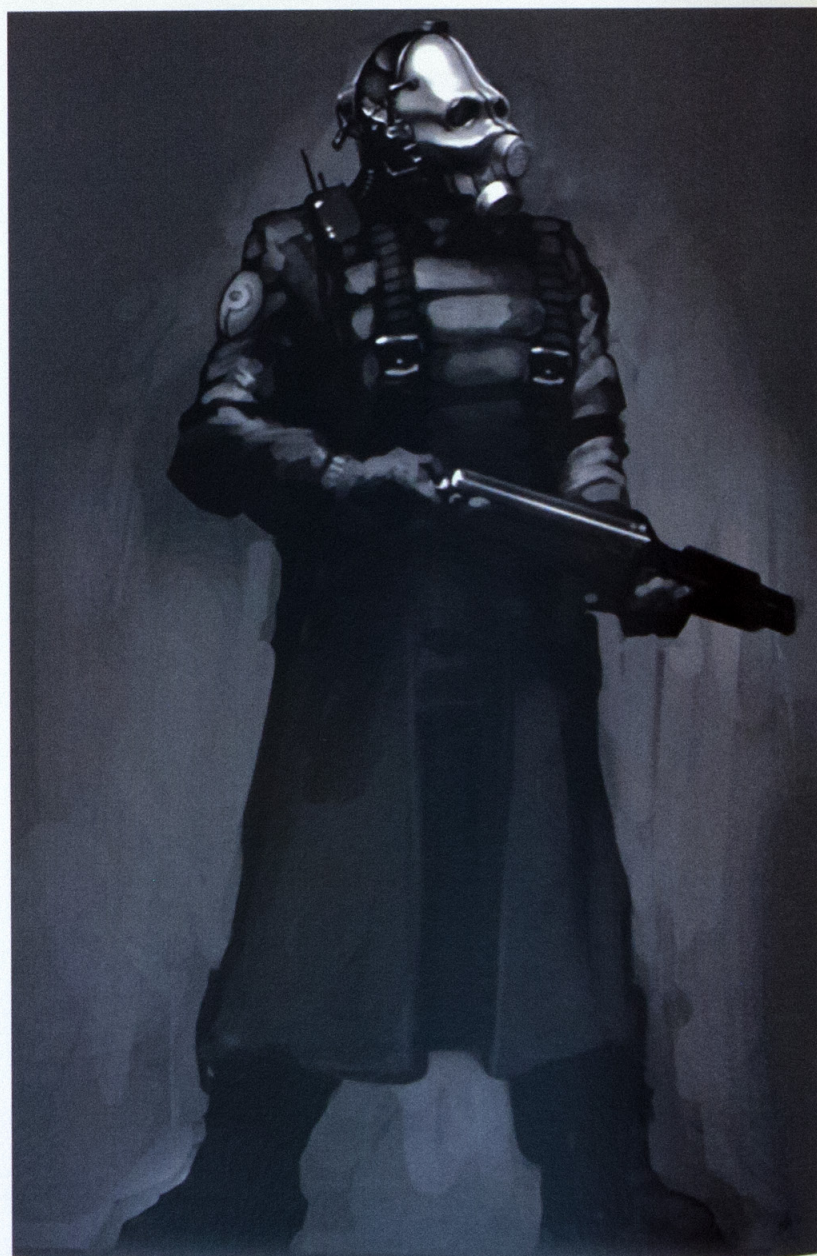
11-6	Illegal discharge of firearms
11-7	Prowler
11-8	Person down
11-12	Dead animal
11-29	Subject has no record
11-41	Request ambulance
11-42	Ambulance not required
11-43	Doctor required
11-44	Coroner required
11-47	Injured person
11-99	Officer needs help/emergency
ADW	Assault with a deadly weapon
APB	All points bulletin
BOL	Be on the lookout
DB	Dead body
GOA	Gone on arrival
UTL	Unable to locate

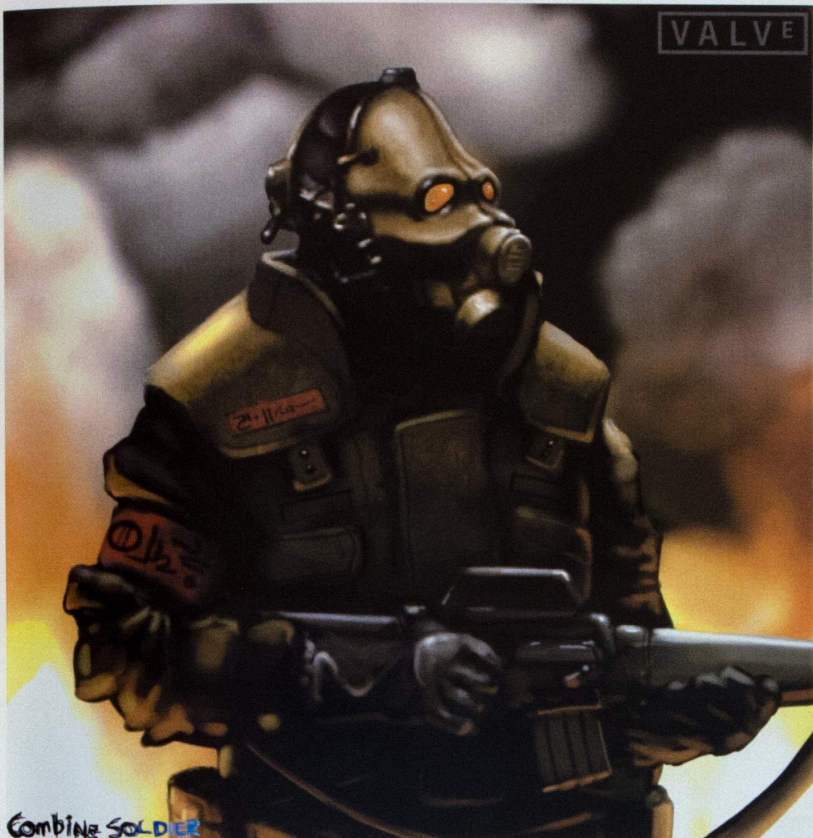
CODES

Code 2	Proceed immediately with lights/without siren
Code 3	Proceed immediately with lights and siren
Code 4	No further assistance required
Code 7	Out of service to eat
Code 12	Patrol your district and report extent of damage
Code 30	Officer needs assistance—emergency
Code 100	In position to intercept suspect
17f	Fugitive attachment
24	Medical emergency
27	Attempted crime
34s	Shooting
51b	Bomb threat
52	Simple arson
56	Criminal damage
62	Alarms
63	Criminal trespass
63s	Sit-in
69	Possession of stolen goods
94	Illegal use of weapon
95	Illegal carrying of gun
99	Reckless operation
148	Resisting arrest
211	Armed robbery
243	Assault on police officer
245	Assault with a deadly weapon
404	Riot
407	Unlawful assembly
415	Disturbing the peace
415b	Investigate the trouble
447	Arson
459	Burglary
505	Reckless driving
603	Unlawful entry
647e	Loitering place to place



Different treatments for the Cop visor



**COMBINE SOLDIER**

The finished Metro Cop visor, with cloak and a menacing pose. Also shown is the final in-game model.

Another of the combine's humanoid forces known collectively as the Overwatch are the Metro Police, ruling City 17 with an iron fist and stun baton.









Different insignia, helmet, and uniform treatments for the Combine Soldier





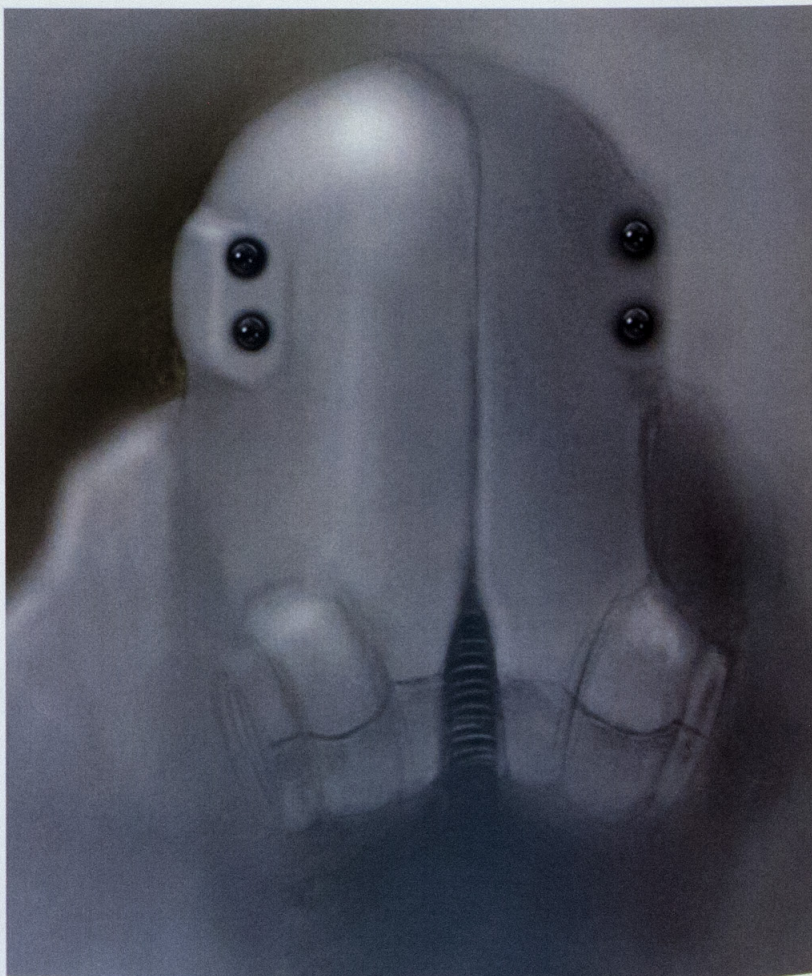


Although Combine forces have a particularly intimidating look, Ted and others wanted to add further arbitrariness to the costumes for a spot of individuality: "Last year, one thing that we didn't have working on the Combine soldier is the randomized gear sets that are on them. They will have one trade-off that we can do to keep the performance the same. We figured out that they will always be holding a gun, so the right hand has eight bones in it and the bones are like the most expensive thing in a model just because they are always performing geometry and using the GPU to actually do the vertex deforms on the skin. However, one of the latest things that video cards do is actually help deform the model, so they take care of those processes. Since we got rid of those eight bones, I could use the extra performance to move pouches, or ammo, or grenades around the body somewhere. If you look at soldiers in the real world, they all have a lot of the same components, they all wear camouflage pants and boots, but then they all have these intricate webbings set up. It is all personalized so they know where their gear is going to be, their grenades are going to be, and their pouches and other ammo is going to be, and that sort of thing. In that way, they are all unique. You are going to get some overlap between them because most of the guys are going to want to put their pouches somewhere where they can get to them. Also, if you notice on the left arm of the Combine soldier, there is a unit insignia. It is actually an individual soldier identification patch. Each squad is going to have a few different types of soldier; the soldiers at the beginning of the game will use normal human weapons and the soldiers toward the end use something else. You will see by their little insignia that they are actually a different kind of soldier. On the back, each guy in the squad has a different number back there. It is really fascinating stuff for me; I am trying to give the soldiers some uniqueness."¹⁵ >>

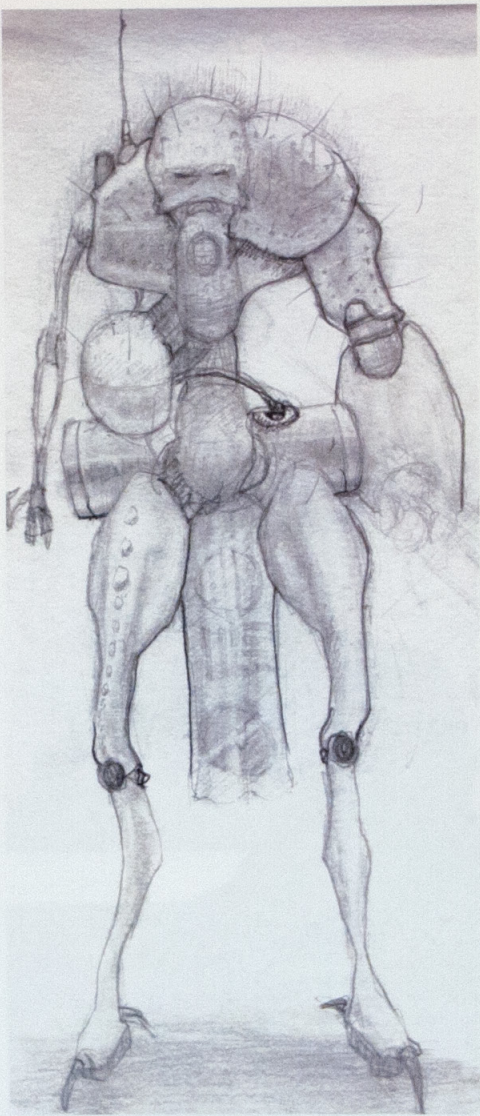
Early and late concept art of a Combine Soldier out of uniform



An unused and early Combine Soldier helmet design

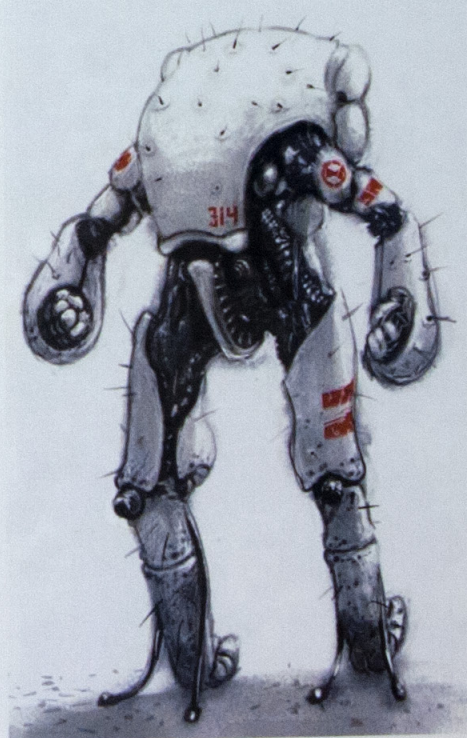








Early concept sketches of the Combine's stronger shock troops, the Combine Elite.



The final iteration of the Combine Elite



RETURN TO THE SOURCE

This massive construction was possible thanks only to the new Source engine, which offers an exceptional degree of power and flexibility. John Guthrie takes us through a few of the features (and note that “entities” means not only “living” beings, but objects, scenery, and other items or structure pieces): “It has a really robust entity system that is very powerful, allowing us to do a lot more. We did a general amount of hacking of entities in *Half-Life*, but with *Half-Life 2* the entity system is very touchable, very well thought out, it’s almost like a pseudo programming language level thing, with very clean input output system relationships. We can really establish entities; every entity has its contacts and we know how to talk to any entity that knows how to receive commands based on what it is aware of. Everything can live in hierarchy. I am sure there is a theoretical limit, but we haven’t encountered it.”¹⁶

As Ken Birdwell explained in an earlier chapter, the practical use of such a system starts with a Cabal. Steve describes early level design as a “mixed group of people from art, engineers, level designers, who get together and we establish what it is about the experience we are trying to do in that particular area, and what is the player supposed to do, feel, and see. We start at a really conceptual level and start to work through phases and break it down eventually to, ‘This is what they do in the corner, this is what they see, this is how we want them to feel the types of decisions.’ John says that the level ‘lives in different forms, and we have the textural description, we have a document, we also have drawings and we have concepts that help us visualize either the creatures or actual places at a purely art level, or just some times it is a very simple flow diagram. All those sorts of tools we go on.”

Steve and John knew that the working atmosphere of the original game was something they wanted to replicate. “Yeah, we’ve gone back to the same environment, trying to recapture a lot of this energy that we got from being packed in rooms. It’s already got us here working later hours, and us goofing off, of course....” Despite such antics, Steve says the close proximity “cuts a lot of your cycle time. When there’s a problem, we turn around faster. It’s Dario, John, myself, and another programmer in the same room at any given time, one level designer for programmer questions and vice versa, so there is no turnaround time on issues.”¹⁷

The process has evolved from the beginnings of the first *Half-Life* development. “We started out as very much the level designers that were responsible for the design entirely, like the experience, the art, everything, for your own individual level. Toward the end of *Half-Life*, people were starting to share more, and that is how consistency really came about. *Half-Life 2* has taken this to its utmost level where we have very intentional phases and people who are responsible for different things.” >>

Father Grigory and Alyx Vance in-game models, showing how different the faces can look. Also present is an in-game screen of Father Grigory administering final rites to a recently deceased member of his flock.



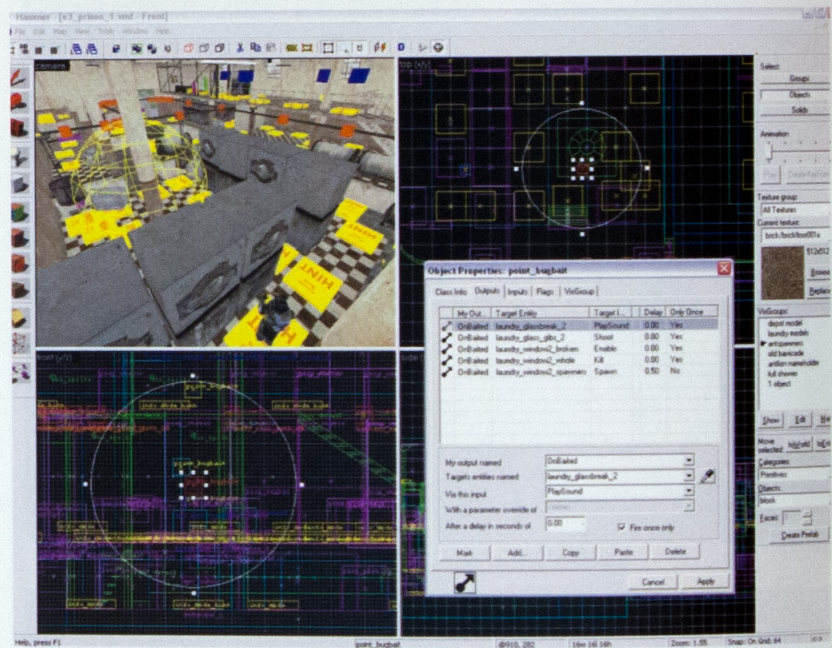
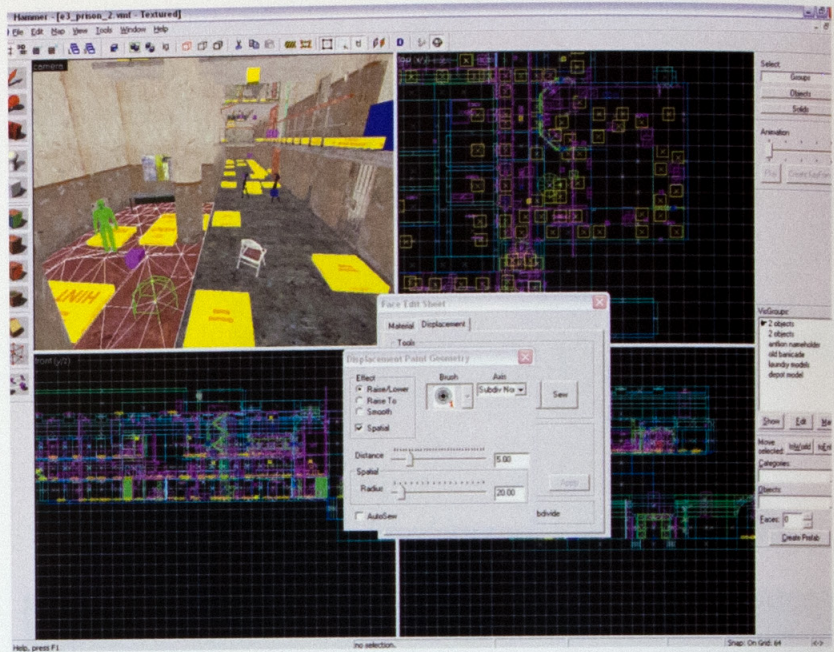
Practically, the designers' role flows a little more freely after initial Cabal meetings, although their main focus is still to design a level skeleton, as John describes: "We will come up with the basic plan, and someone like me or Dario will take and develop a really basic layout with brushes, volumes, scales, flows, those sorts of things, and we work in encounters and hustles that are really basic elements, so we can evaluate them without having to commit instruments that aren't our resource to a design that may not be any good. It may not be fun, and we may have iterate and finally change a lot of things. After testing, and once we get it to a point where we sign off on it, we send it through the art process where another group of people will texture it, and model, author props for it, and lighting and things like that, special effects, special shaders, and stuff like that get applied. Something as simple as a dust mode, like those sorts of things, come in at the end when we've already signed off on it."¹⁸

HAMMER TIME

This is good news for the modding community, as Steve reveals: "From the ground up, we were really deliberate about making it mod-friendly. The entities actually have help built into them now. You can get help on any one entity, and you can see all the inputs and outputs, and it is described, and there is much more of a help system. There are really great examples of prefab entity relationships for common things, like if you want a swinging light, it reacts to physics and can be detached if it takes enough damage. We set up all this really deliberately."

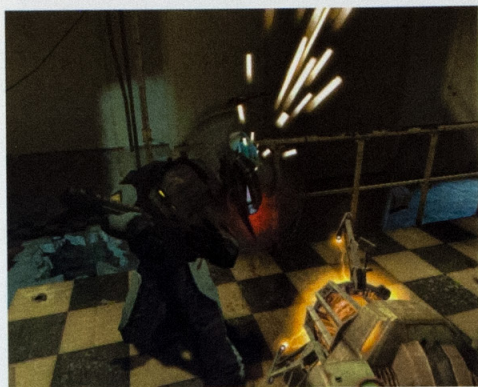
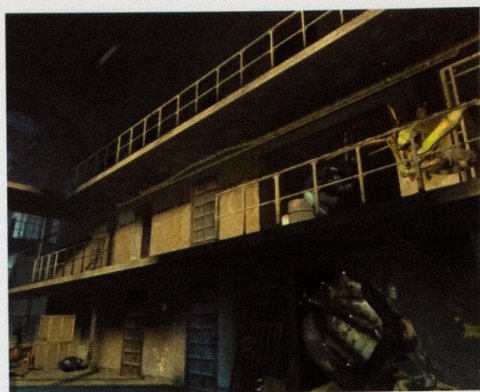
There's a "warehouse," where mod makers can see all of the different props in one area. "Yeah, there's a level browser, but you can also load example levels and have stuff placed. That is what our prefab library also accomplishes; you open a browser.... 'Oh, this is that machine, that vending machine, where all those cans come rolling out of the front of me.'"¹⁹

Valve's newest version of Hammer, its level-design tool, has also been upgraded, as Steve gives an example: "Most entities that used to have a complex setup procedure now have things called helpers. So if you have a door that needs to open a certain way, in place of a hand, you just grab a helper and slide it toward the door's destination, and then you are done, instead of having to point an arrow that way, and then type text in the field that tells it how far it is supposed to go." Another example, spotlights, are also easier to place. Steve elucidates: "Whenever possible, we have done visual helpers to alleviate numbers for any kind of funky analog control. Spotlights, for example, have actual representation in the world. If you want a spotlight to point at something without having to figure out the angles by numbers, you can." >>



Screenshots of the Hammer level editor in action. Designers build a scene with no textures to test gameplay, then proceed to apply textures and details.





In-game action from in and around Nova Prospekt cellblock B, after Hammer construction ended

Having had the experience at constructing some pretty complex environments, Steve estimates it takes around five times as long to finish a level from beginning to end, despite the ease of using Hammer. Everything's just so much more detailed this time around. This has led to level teams rather than single designers. Steve again: "We are split up in small groups like Dario, John, myself, and Tom were working on the City 17 street battles with another member responsible for Hammer stuff. It's pretty tightly integrated, I mean, Dario will start with the first screenshots, which are these orange measuring points that are supposed to be spaces." As the earliest *Half-Life 2* screenshots released to the media proved, there was some confusion on why this stand-in texture was used. Why not make it the texture of...for example...Gabe's head? John has the answer: "People don't run away quite as quickly if it is an orange shape."²⁰

Not only that, but the orange tiles are a garish color to easily distinguish them from completed textures; they are Valve's trademark orange color, and more importantly to Steve, "They also have some metrics built into it which actually is graduated in certain ways so you can tell how large something is. Because when you are dealing with something that is so uniform in color and consistency, it is difficult to get some sense of scale, and the idea is to not invest too heavily in your first effort at building a space when it is not proven that what you are about to build is going to actually be fun. If it is not fun, it can't be part of the game. So, Dave Riller might build a room out of orange, we will start adding in the characters and things that are supposed to be in there and if something doesn't work properly in the space, or properly evolve, then there is an aeration with the programmer to fix it, and then the screen starts to shape and we go, 'Hey, that's fun,' and then it passes off to art. Then it comes back, we compromise between the experience in the art group and send it back to art and say, 'Raise the lights up,' that sort of thing. The end result is that you got people who are really specializing in one thing that they are really good at and they focus on that while everyone else focuses on what they are good at."²¹

LOOKING UNDER THE HOOD

Another big difference between the two engines that powered *Half-Life* and the sequel is the addition of models. Steve explains: "A big thing is that we have converted more of the world to models instead of using brushes as we did before, which gives us a lot more control over when things get thrown in the game. The coastal area...say we have a house that would normally be drawn in the same physical set. We can turn all the models in that house off when we are outside, and when we come in, we turn them all on. Something like that we could never have done before because we were always using brushes instead of models. That lets us offer more dense interior spaces; video cards are much better at drawing models."

John continues: "The material systems also give us ways to make stuff we hadn't even thought about in *Half-Life*. In a lot of ways, our *Half-Life* dreams are coming true now because of the new material system, terrain system, the fact that we can have large outer spaces, we can have reflective surfaces and things that we weren't able to do before."²²

Back to Steve: "It's inter-operative ability between old systems too, that really has made a huge difference, when everything works together, when your physics system works the same as it does on your world geometry, as it does on your terrain or your water, as characteristics that make sense.... So if it floats, and when you break it, it breaks, and those broken pieces can be used by the world, and the NPCs know how to use a physics object, or how to walk on them, or if you want to attach them in hierarchy and make them group with other things like doors, or all these other tools that we have for building the games.... Having all these things that work together means more pools for allowing us to get what's in our head into the engine."

John Guthrie knew what the team was attempting early on in development: "Some of it was trial by fire, going, 'Wow, this is a lot more work.' We could have 5–10 times more polygons on the screen. But somebody has to build those extra polys, so even in the same volume of game space, because you have added that much more complexity, you have created that much more work for somebody in general. Knowing that we're going to be very intentional about using a lot of models versus world geometry meant that we had to react accordingly and beef up our modeling stuff considerably based on how many objects we generally wanted in a scene, and how complex they were going to be."²³

EARLY ENGINE MISFIRES

By the middle of 1999, Valve's technical team and others in this particular Cabal, "came out with 120, 130 major things to do with the game engine and we picked about six or eight of them." Right after the shipping of *Half-Life*, Jay Stelly, senior software development engineer, and Ken Birdwell both knew the improvements they wanted to see. "Ken, myself, and our core tech team including Yahn Bernier and Steve Bond who did a lot of the AI, all started thinking about what we didn't get to do on *Half-Life*, what we really wanted to push forward on, and things that we did a little bit of that were really successful. It doesn't sound that great now, but back then stuff like having all the surfaces you walk around on or hit all make different sounds and all have different properties to leave your mark on the whole world, like having an explosion on a door and a big mark on it, then opening the door and the mark's still on there...that was big news back then!" The team had already made strides toward this interactivity, with "skeletal animation, tying animation to speech, having heads turn to follow you, having feet match up with the environment. Pretty powerful stuff."²⁴ For 1999.

One of the six (or eight) improvements was, according to Jay, to "invest more in the characters. We didn't have the guys moving their mouths and talking. We really wanted to make characters much more like people and be interesting, because really we had good experience in *Half-Life* with Barney and the scientists. It was much better than we expected." The Black Mesa personnel still had their foibles, though. "They weren't going to be real people, they were cartoons. Sure, they were talking and stuff, but people went straight past that and started asking, 'Why do they all look the same?' We decided we were going to invest a lot in that and really work on giving them emotions, tying them into the world more. They could talk about the story, the environment you are in, they can be scared, have emotions for you, and feel things. There were a lot of problems to be solved. First, we wanted to do emotions, so Ken went in and started working on the animation. Around May or June 1999 we started to focus on it."²⁵ >>



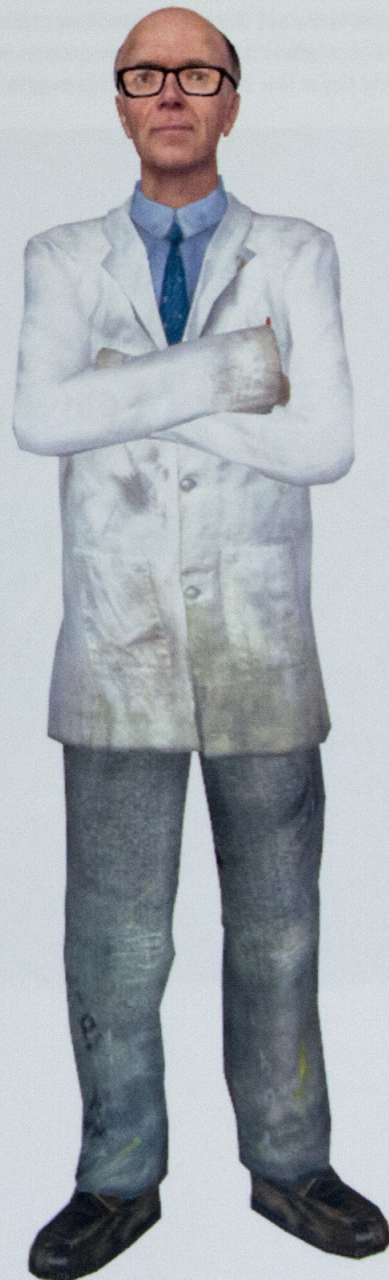
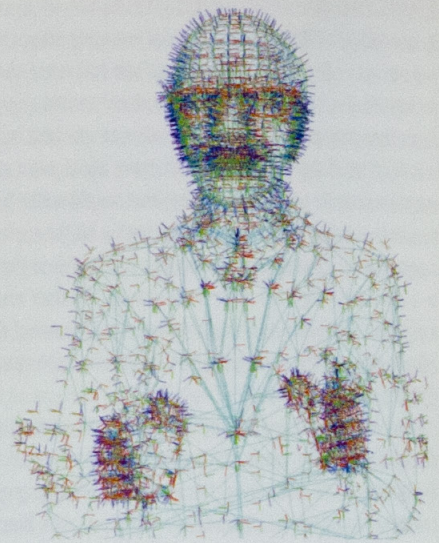
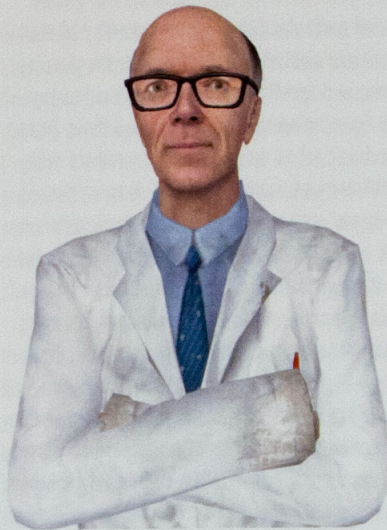
WRITTEN IN CODE

"We first went through and researched all of the existing engines." Then Jay posed the following questions: "Do we build our own? Do we buy a new engine? Do we license *Unreal* or *Quake III*? Do we want to support software or hardware? So, it wasn't until late 1999 that we actually began coding development. By early 2000, the code started to get in place, and we started having major structures." The company grew ("Gary McTaggart, software developer, and Charlie Brown, software developer, showed up"), and Mike Dussault (lead engineer who, according to his Valve bio, "In his spare time, plays guitar and piano, writes code, reads, writes code, hikes, writes code, attends punk shows, and cooks.²⁶") arrived after a long, hard sell, from Monolith after helping create the Littech engine powering *Shogo*. One of Mike's first jobs was "distributed computing."

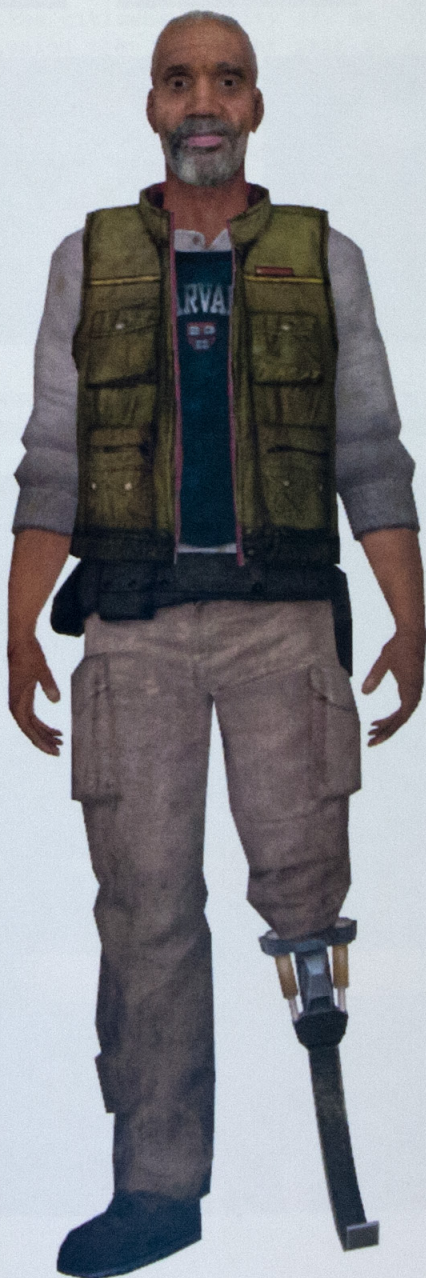
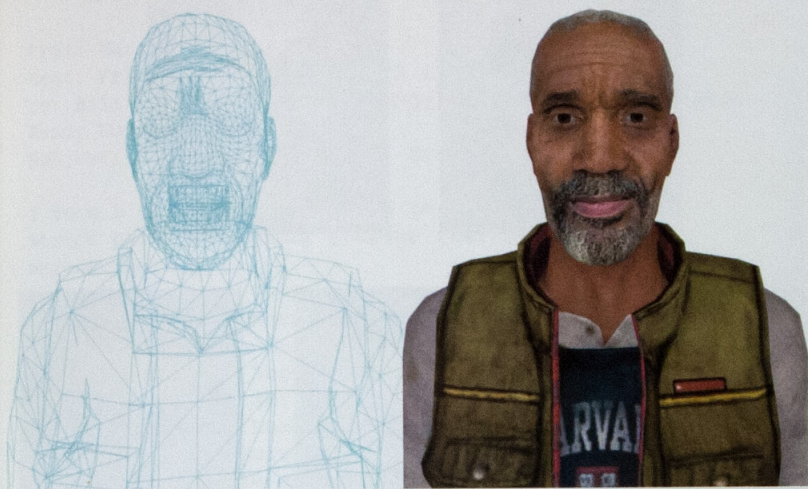
Jay details Valve's previous map compiling processes: "We were doing it in piles. We'd build these big machines with four processors and all the money you could throw at a PC for it. We don't do that anymore. Now we just have a hundred machines in the company all sitting there running a distributed computing coordinator that says, 'Oh, here's a lighting job' and 20 or 30 machines go, 'OK, I'll do some of it.' At this point, we are building these maps that lock on our machines like we did in *Half-Life* that would take days to compile. Now it's around 20 minutes."²⁷

Valve's biggest investments, according to Ken, were in lighting characters and animation. "It's totally different." From the list of features, Jay and Ken took a look and said, "God, if only we could do this—it's theoretically possible, but I would have to rewrite everything. So I rewrote everything. [laughs]"²⁸ One of the advancements was in the type of shaders a designer could use to create further layers of believable textures on an object. Erik informs us of the new techniques: "You start with the base section and just get to apply different shaders across it and passes. And you can create custom shaders that are one off. So that things like the effect of the strider shooting at you, or the red tubes in Kleiner's lab are custom shaders. The reflectivity would be a more base shader. Modeling perks the hyperability in the right shaders. There are some interesting things that can come out of that. Or, there could be shaders available on hardware that isn't available right now. And we're dealing with the right shaders for that. So that's pretty exciting."²⁹

Ken's code rewrite also led to layers of animations for every character. "In *Half-Life*, an animator would make a sequence of animation, and we would play that map and string a bunch together." Now, according to Ken, "You can easily be playing upward of 20 to 30 animations per guy. You've got two or three layers playing all at once. You've got a finger layer, an arm layer, a whole body posture adjustor layer, plus you're walking and moving, so there are full navigation layers; those are all being paralleled, and then you've got full body controls, and head controls, and shoulder controls—those all are going at the same time with faces moving. Your face has 40-some different controls that are all moving at the same time."³⁰



Doctors Kleiner and Eli Vance, with and without polygon markers and texturing, and a final character model



The XSI animation tool was instrumental in the construction and bonding of these animations. Bill explains the layering of animations that Jay and Ken touched on earlier: “You always have pace animation times in there, but for the characters’ acting part, we use bits and pieces in XSI where you can divide different elements in your program. It kind of works like a using a director. I just had a bunch of tracks (Ken called them “layers”), and in those tracks we call up the animations of the AI. It is just a big group of layers, or a big sandwich.”³¹

REELING IN REALITY

“We’ve done a really cool thing,” Jay says with a smile, “which is still a little bit of procedural stuff where we do shoulders and joints, and make it a little better with code, and we actually do physical simulation, physical animation, but for the most part we have taken the things we did in *Half-Life* that were procedural, like aiming and pointing people, and having the player bend at the waist to turn where their guns were pointed—that was all done in code—and that’s all become artist orientating animation now so we can make things look a lot better, and they can customize all different channels of that as we layer it back together.”³²

The early days also involved changing the look of the game a couple of times. Jay comments that “We also found that we had to stylize some stuff a little bit because it’s pretty important that all of your realism is at a consistent level, so the fact that we don’t simulate clothing and our lighting models do a certain level, and it’s pretty good, but there are things....”

“We don’t do good subcutaneous reflections on the skin for different heights,” finishes Ken. “We could put a photographic texture that looks exactly like that, but since the lighting wouldn’t respond realistically, it would draw your attention to that texture and you’d say, ‘Something is wrong here; there’s something that I just don’t believe,’ and it’s the lighting. It looks significantly worse than if you back it off in terms of realism.” Which Valve did, early on. “Yeah, we had very iconic graphic characters. Then we went to one level of realism, and then we went way past that and the characters were just creepy; they weren’t fun.”

Hyper-realistic attempts resulted in the exact opposite effect: “Why are the clothes plastic-y? The clothes don’t move right, they don’t rustle, the lighting on the hair is wrong. You notice all those little things.”³³

Bill shares this view: “Well, we actually have an interesting issue. We actually started out trying to be a more literal and a little bit more realistic. And people are so familiar with how humans move and how humans act. And I think Ken Birdwell’s done an amazing job on having the eyes work properly, setting up the animations for different facial movements. If you get too realistic faces, it’s totally uncomfortable. So, we started off with a little bit photographic and gradually pulled them back to a comfortable level of stylization.”³⁴ >>

THE EYES HAVE IT

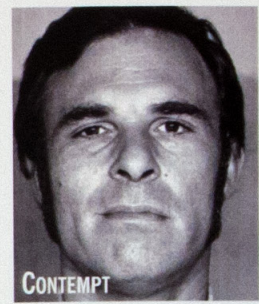
Bill saw the whites of his characters' eyes: "On the eyes we ended up doing a texture where the whites of the eyes are, and then the iris is actually composited on there with a shader. And also it simulates a corneal bulge on the eye, as well, so that we can get the proper reflection of lights in the room. So there was a specific way we had to do that. And then you had to put sample eyeballs under the lid position to tell the engine how they'd be elsewhere, how to move, things like that. We took a subset of all the classifications of muscle movements that had, and broke them into individual processes so that the faces are really fluid and expressive. Actually, we're so much closer on the G-Man in some of the E³ 2003 shots than we ever intended to be. You can see those polygons on the edges of the eyes, and the characters don't have tongues, which is something that, when you get close enough, you can notice. The inside of their lips are just really sharp edges, you can notice the corners of their mouths don't have quite enough polygons sometimes, but then you're not expecting to get so close to the characters, but you ended up working so well that you wanted to get closer to them than you had normally intended."³⁵ Long hair though, was snipped. Bill knew "that there were certain things, like we decided we weren't going to have characters with ponytails, we weren't going to have flowing or loose hair, so we had constraints that pretty much everybody has to have either form-fitting or pulled-back hair."³⁶

The engineering team has also made sure characters are always emotive. Erik Johnson: "Another area that a great deal of time was put into was acting. Ken Birdwell spent a great deal of time using some research based on a clinical psychologist named Doctor Paul Ekman, who was studying autism. It is kind of related, correlating autism in facial expressions. So, the interesting thing for us was that the study was documented in a very technical way. Like this muscle does this when you smile. There are around 34 emotions. We replicated them all."

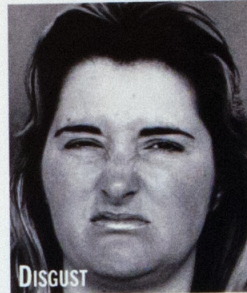
Jay extrapolates, "You basically author performances, and the characters are always running some kind of performance. They have the basic idle ones, which are emotions which the AI and the multiples set, but if they are doing a whole performance and are giving a scene, the level actually says you want to play this scene and the scene authors it. At the lowest level, the commands are issued to the face, the system that consumes those and displays those is capable of taking any number of those at the same time and will never do something unnatural with the face, so you can create new expressions, but not ones that would be all crazy."³⁷ >>



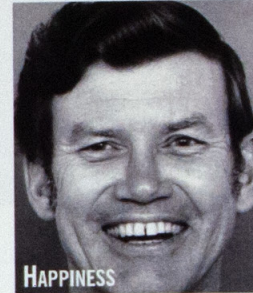
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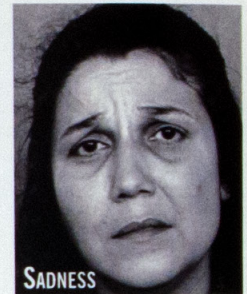
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DISGUST



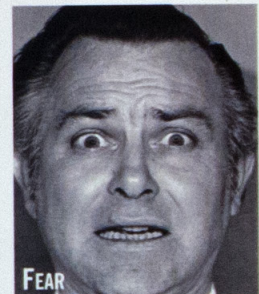
HAPPINESS



SADNESS

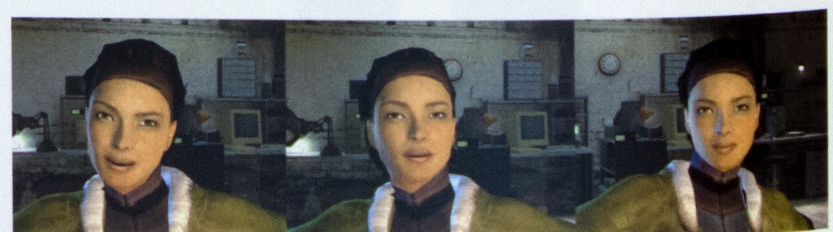


SURPRISE



FEAR

After studying the research of Doctor Ekman, who produced these photographs showing the seven different emotions, the Source engine replicates these expressions, as Alyx demonstrates.



From: Marc Laidlaw
 Sent: Friday, August 22, 2003 11:59 AM
 To: Bill Van Buren; Dhabih Eng; Bill Fletcher; Viktor;
 Randy Lundeen; Greg Coomer
 Subject: RE: Please help Dr. Breen

I vote b or d...although I'd prefer an even more strict pair of reading glasses (narrower, no bar across the top).

-----Original Message-----

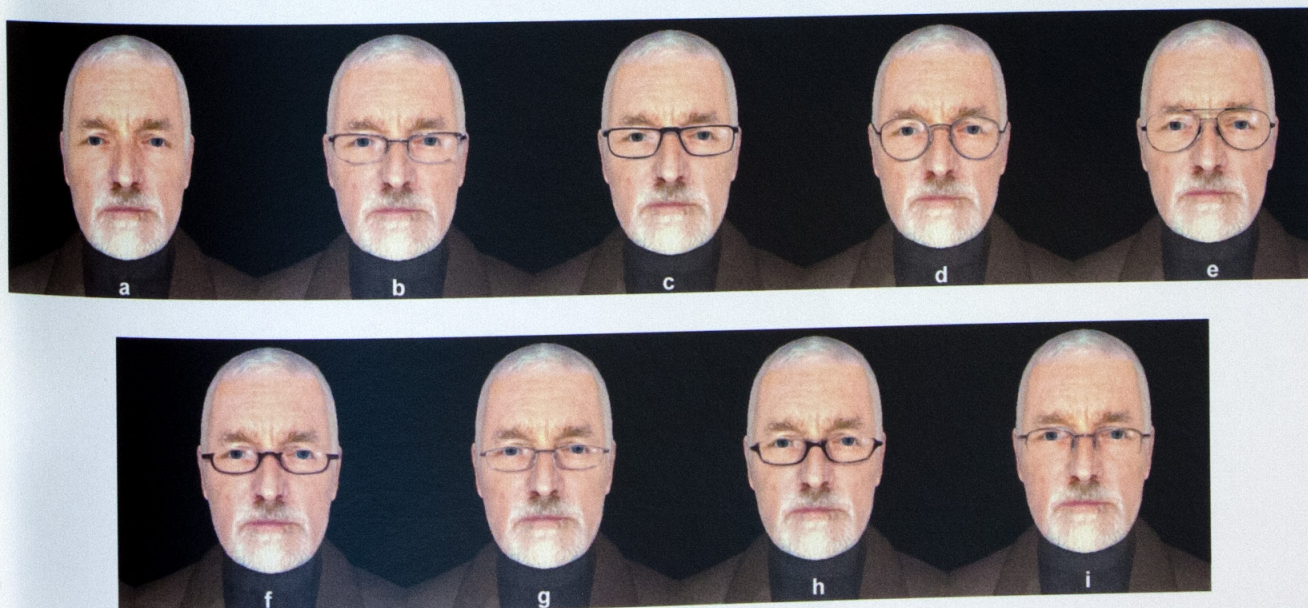
From: Bill Van Buren
 Sent: Friday, August 22, 2003 11:56 AM
 To: Marc Laidlaw; Dhabih Eng; Bill Fletcher;
 Viktor; Randy Lundeen; Greg Coomer
 Cc: Bill Van Buren
 Subject: Please help Dr. Breen

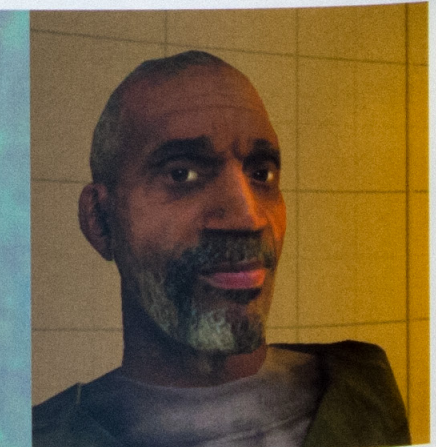
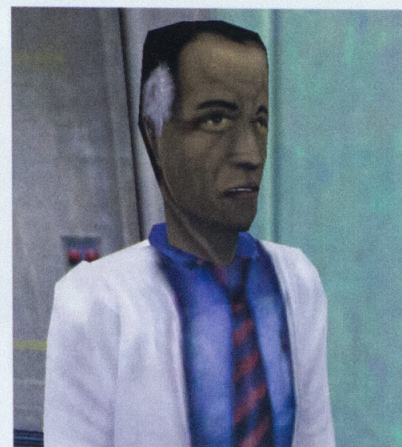
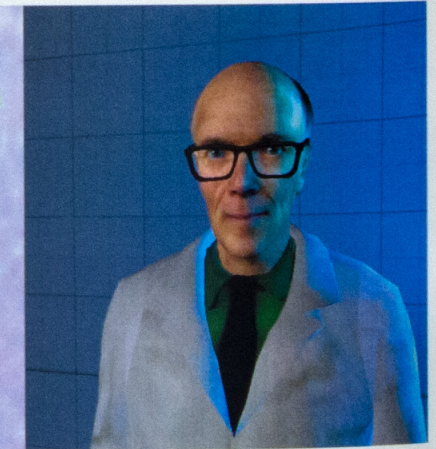
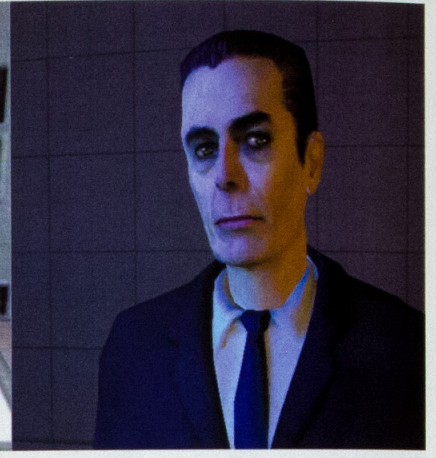
Dr. Breen has been noticing that he's having increasing trouble reading his frequent announcements to the citizens of City 17. He has come to the conclusion that the right pair of glasses might enhance his appearance as the "administrator" of City 17 while easing his eye strain.

Will you help Dr. Breen choose the right corrective eye appliances?

- a) contacts
- b) stylish black
- c) for that 'bookish' look
- d) a bit more daring
- e) standard aviators

A look behind the scenes during *Half-Life 2* production: This e-mail from Bill Van Buren asks some of the team its thoughts on the type of eyewear appropriate for Dr. Breen.





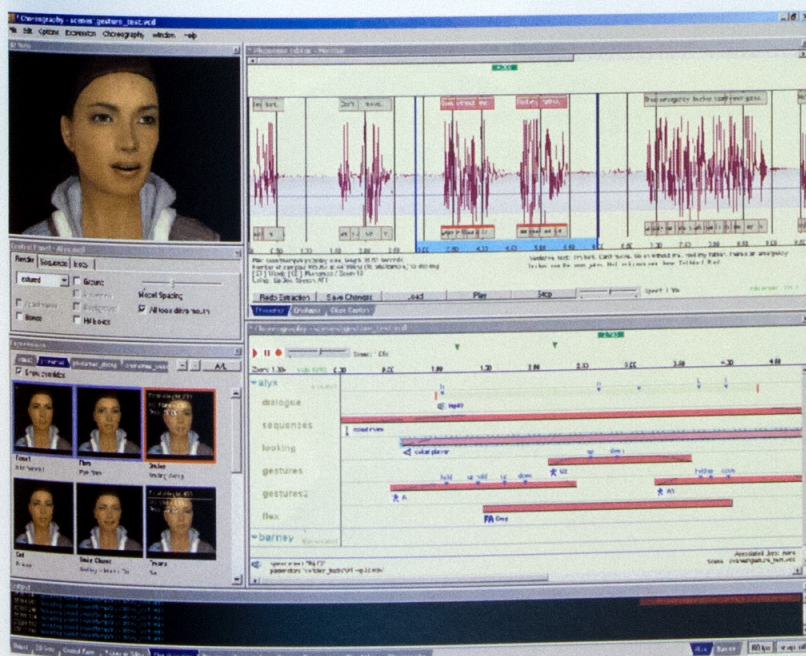
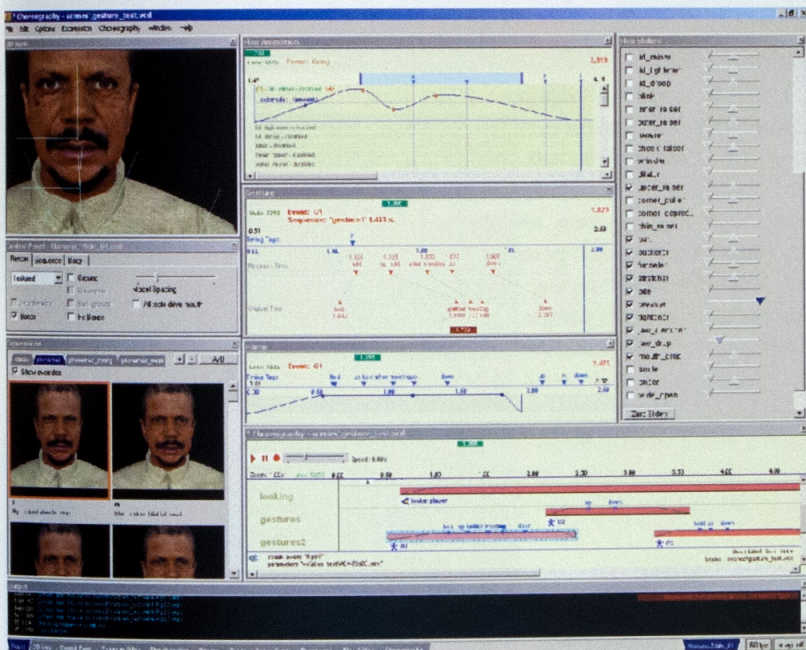
The G-Man, Barney, Kleiner, and Eli, before and after their *Half-Life 2* makeovers

MOUTHING OFF

Some of the most noticeable character traits in the game are perhaps also the most subtle, as the animators strive to finally create a believable human, with appropriate body language and mannerisms. Bill notes that “you can’t just have the face plastered on a head or not reacting; it’s got to be calculated in the way they are sitting, if the arms are folded...” The process begins with human emotions and dialog. “Marc Laidlaw will have a script and talk about it, we cast all our people, go to the greater LA area or have a computer record the dialog that would be in the beginning of the dramatic decision, we come back and start blocking it into an actual level. We have our characters stand there and just talk to say their lines, hit different marks, then we just kind of start chiseling away from there, and we start adding different animation. Actually, we have them interact on that level, and that’s where we test the pacing.” This “chiseling” process is the adding of gestures, furrowed brows, excited hand-waving, or any number of other animations. “They all have unique animations, every expression will be totally done by hand, there won’t be the same facial animations. If all the characters had the exact same facial sliders, it wouldn’t work as well.”³⁸ Facial animation is a tricky area to perfect, as the characters have more detail than most.

“There are tongues.” And teeth: “Yes, we got teeth.” You had to individually model teeth? “Yes.”

As for eyeballs (and all these facial elements), just like the game scenery, it all depends on distance. “With the view of eyeballs you get at distance we wouldn’t model things that are not probably seen, so sometimes when you look at a photograph, the teeth are just a white spot, and then the characters have the same thing. You have a lower version from far away, and the closer you get the more detailed it is.” For mouths, there’s a lot of reliance of physics, too. “We just rate it with two bones, and we tell it how much friction we need. It has a weight.” Characters can move different facial features at once, though: “If the AI is telling the character to frown this way or be angry, and then you play this scene at the same time, and the character has to do this spoken word that’s going to move the mouth, it just suppresses what can’t be done at the same time.”⁴⁰ >>



The face poser tool in use

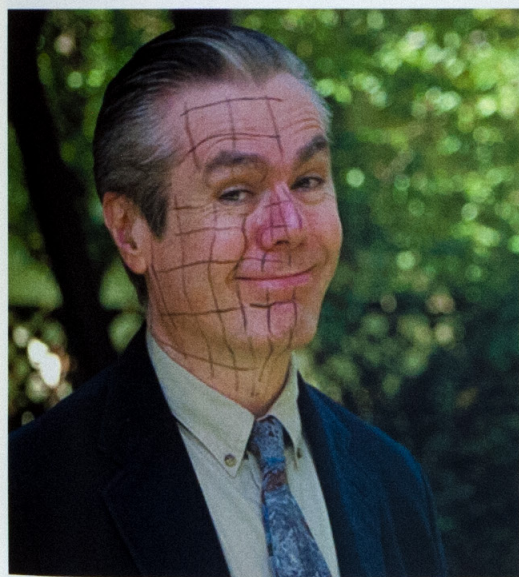
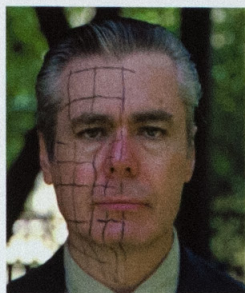
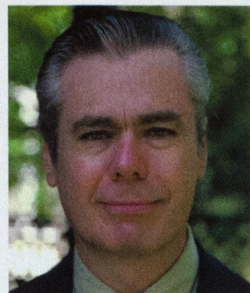
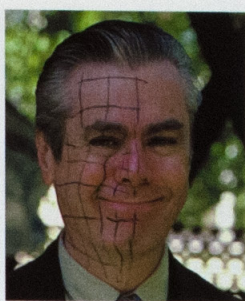
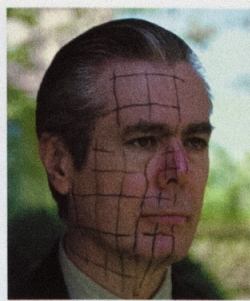
Colonel Odessa Cabbage (bottom) was previously a seafaring military man named O'Dell in early Half-Life 2 design (top)



"Right" Ken agrees, "The whole face is all very technical, but basically there is an entire system that maintains a plausible expression on the face, the face can never do something impossible. The lips can't pull apart, they can't go into the teeth. There's a little mini-p code run-time language, which runs behind your face as you act it. You can literally send random data at the person's face, and because the character has this whole set of expressions, which Dr. Ekman came up with, they can't do anything implausible. They'll make a funny face, don't get me wrong, but it looks possible; I mean Jim Carrey could do it. I could do it. Actually it is weird; if you send a random sample to the face, characters look almost neutral, the system looks at it, says, 'I'm getting too many conflicting signals' and it just ends up suppressing into this medium level. To actually do an extreme expression, you have to send through very deliberate manipulations, then the extreme expression will still be completely plausible. That is how faces work."

Jay finishes: "You can sit there and author something in our face poser tool, written by Yahn Bernier, and tell it, 'Here is my scene, the guy says this, he does these gestures, and his face moves like this.' You can do a whole linear animation like that, and then whatever you want to put on top of that, and the lip sync on top of that. It is really robust and very forgiving in terms of authoring."⁴¹





G-MAN ABOUT TOWN

Sculpting the correct type of face for each of the main and ancillary characters, and synching in speech, was another principal process to attempt. Bill Van Buren walks us through the process: "We cast the heads and we cast the voices. Marc came up with a character, and then we started trying to figure out what the person looked like. For all the characters, the heads came first. So, for instance, Alyx came out of a face book of models and we started there, changed her quite a bit. Eli was very interesting. Randy Lundeen, one of our artists, saw this guy with a sign on the side of the road saying he's looking for work. And he had this incredible face. So we went down and asked him if he wanted to come in and get his head shot for our game. So it was that kind of opportunistic process that we went about getting faces for a lot of people in the games. And then casting, we worked with the casting director, who had over a hundred different people do auditions for Alyx, out of which 50 went to us, then narrowed that down to the final 5 people we felt were interesting, and we went on from there. The time that the characters came about went through a process like that. In terms of the art, I generally photograph the person, and get them gridded up, and put marks on their faces, build them in 3D, shoot some textures, and do one pass on them, and then pass them over to Dhabih Eng, who will then construct something which is a faithful reproduction of the person in 3D, and then take it to the next step. Like on the G-Man, who actually, hilariously, is a world-renowned Alexander Technique practitioner ["a simple and practical method for self-improvement and self-help"⁴²], and our janitor, Frank Jeldon. I got him in, Dhabih pulled his cheeks in, and we created that gaunt face that we used."⁴³

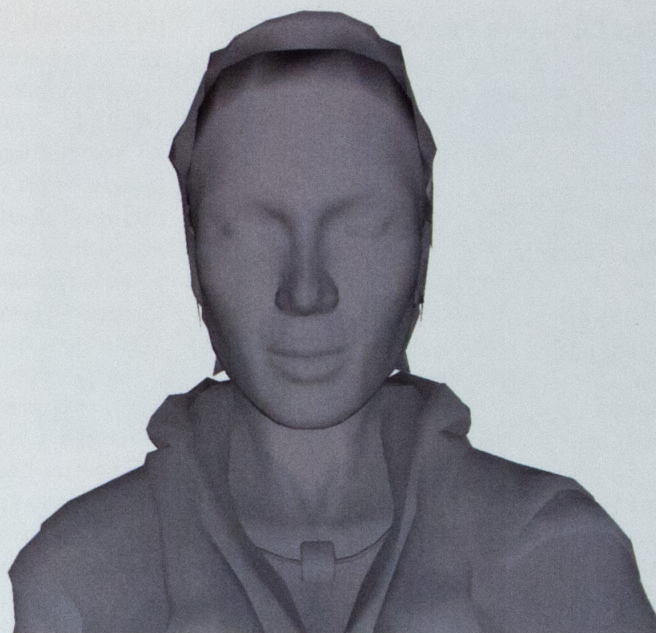
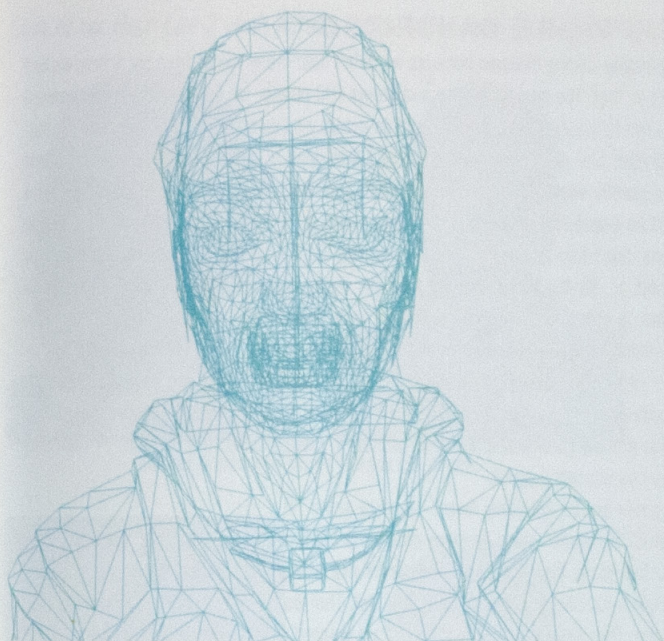
Other face models were obtained from a wide variety of places: "A waiter in a restaurant, a guy selling a newspaper for homeless people in front of a supermarket. People that are friends of other people. Some of your climbing friends. So, a bunch of different faces. One of the things that we went for was trying to find people without average faces. We wanted to find people with kind of a striking face. Or, even an odd face sometimes. Father Grigori was the head of one of our modelers' fathers here. He's Eastern European, so that was kind of a natural fit for Father Grigori." And as for the Colonel: "Oh! He's a martial arts teacher who originally was a different character in the game—O'Dell. And O'Dell got cut, and so recently we figured we needed a unique head for this guy, so O'Dell is gone, and transformed into Colonel Odessa Cabbage."⁴⁴ >>

Frank Jeldon posing for initial photography, with and without a felt-tip grid on his face







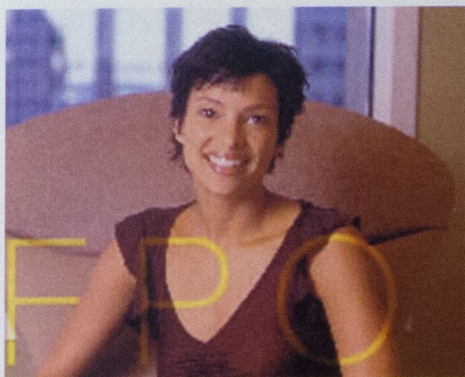


Out of hundreds of models, one was chosen to be the archetype for Alyx Vance. After her photography session, Alyx's face went through some minor changes before the final version.

CASTING OFF

The commencement of the voice recordings didn't go well. Bill was there and made the appropriate changes: "We wanted to try some things that worked in *Half-Life* where we actually had the actors say lines together in kind of a set piece. It was very exciting when we were there, it sounded good, they had energy passing between them. But then when we got back, some of the lines were flat and would ruin the scene. So, what we found would work for us is we'd get people in isolation and just focus on every line, make sure that every word rings true in every line, and apart from that also get every line multiple times. So especially when people are working a laundry list, stuff like, 'Gordon, run here,' 'Gordon, run over there,' things like that. We'll have them say those lines three times, we'll take their inflections, and also with different projections. And then the real set pieces where people are acting together, something that we did that worked really well was we would have somebody do their takes, and then I'd secretly cue up WAV files to my computer and make them do the script, then trigger the WAVs, so that we'd play the track again and become the character. They'd really understand the energy, and it's like passing the baton. You start off with something you think is really the right approach for one character, and that informs the next character and the next character."⁴⁵

Bill hired a number of actors for the different voice roles. "Jim French did Grigori; he's done a lot of syndicated radio plays, and so it was really nice. But there was one strange thing that we found with voice actors now. When you ask for their demo tape, you get car ads...there's nothing to show their acting. So, it was actually better that people sent us their regular film reels, so that we can establish what their acting is like. Dr. Mossman's voice-over artist is Michelle Forbes. She was on *24* and *Homicide* recently. She was Ensign Ro in *Star Trek: The Next Generation*. Doctor Eli Vance is Robert Guillaume, who was Rafiki in *The Lion King*. He was just in Tim Burton's *Big Fish*. Robert Culp, for those of us old enough to remember, is this great actor from the 1960s in television who did *I Spy*. And then he did *Bob and Carol and Ted and Alice* and all these interesting 1970s TV movies, *Twilight Zone* episodes...a great voice—he's Dr. Breen. Hal Robins and Michael Shapiro both were in *Half-Life* originally; they're continuing their characters of Dr. Kleiner [Hal], Barney and the G-Man [Michael], respectively."⁴⁶ >>



A BRIEF CHAT WITH THE VOICE OF DR. KLEINER.

Harry S. Robins, the "voice" of the lab-coated scientists in *Half-Life*, and Dr. Kleiner's soul in *Half-Life 2*, was happy to reprise the role he enjoyed so much in 1998. "In *HL*, my voice was used for multiple 'scientist' characters who didn't have proper names that I knew of," Hal informs us. "Of course, for *HL2* my voice is that of Dr. Kleiner, but I also provided some generic 'soldier' voices for *Opposing Force*."

Hal brings his own experience to the readings: "I tend to follow my instincts. I visualize a peevish, condescending specialist, whose over-precise diction is intended for the benefit of those whom the speaker believes to be unintelligent and in need of explicit instruction. This in itself suggests a comic character portrayal."

Hal, too, cites his own influence when getting into character: "The best 'mad scientist' voice and manner which I know of, and which undoubtedly I tend to emulate somewhat, would be Lionel Jeffries in the British film *The First Men in the Moon*. A pastiche of his vocal mannerisms serves me well as my 'default' performance." When recording with Valve, though, he needs nothing to fall back on: "I have always been assisted by useful supervision and direction, which eliminates the need for falling back on such tropes."

Hal's voice sessions for *Half-Life 2* went well: "As a recording artist, I pride myself on being a 'one-take wonder' in the studio, taking up the least amount of time possible at the microphone. 'Five hours' is the time that pops into my head—that may be close to the reality." Hal has some favorite lines, naturally: "Hmm.... 'Why do we all have to wear these ridiculous ties?' and 'Have you seen my coffee cup?' are somewhere near the top of the list."

Although Hal has yet to receive any bizarre fan requests, he is still open to them: "In 1999, I volunteered to do a phone message for Valve in character. This was well received at the time but never acted upon for one reason or another. I'd still do it if they wanted!"

Although Hal and Kleiner have a close association with each other, he does see some real-time similarities: "Where there is a bond, it's in the shared experience of having good work, which I know to be good, undermined and spoiled by the ineptitude of others." For example, Hal "just wrote a book in which various interpolated errors appeared through the sloppiness of employees of the publisher despite all my efforts to the contrary, and after I turned in a 'perfect' manuscript." You just can't get the staff these days. Still, his work still may be published: The book I mentioned above, *The Meaning of Lost and Mismatched Socks*, actually appears somewhere in *Half-Life 2*, Marc tells me. Last seen on the television show *The Conspiracy Zone with Kevin Nealon* for two seasons, and the writer and performer of a number of plays and musical comedies "30 to 28 years ago," Hal's principal partner in these enterprises "was Merl Reagle, now considered the greatest living constructor of crossword puzzles."⁵² Nowadays, Hal (sometimes under the *nom de plumes* of Dr. Hal or Dr. Howland Owl) often performs on stages in San Francisco, other cities, and annually at the Burning Man Arts Festival in Nevada.

INTRODUCING MERLE DANDRIDGE

"Alyx was the most interesting casting decision because we didn't hear many voices from big actors; we had to cast a really wide net on that. The casting agency auditioned 100 people, we listened to 50, we narrowed it down to 5, we went down to live auditions, but then put on actors who were on *The Sopranos* and eventually chose Merle Dandridge. She is a Broadway actor, and has done a lot of live stage in *Jesus Christ Superstar*, and she's currently voicing a documentary. She's amazing. We needed somebody who had a pretty voice, that could be sweet and very warm, but then could go to action, and really be a believable action character, and we didn't find that in many people, so she did a great job on that. Oh, and the really fun one was Lou Gossett, Jr., for the Vortigaunt. We had this really interesting phenomenon there for the casting people. We came up with sheets of 'This is who the character is' and an actor as an example."⁴⁷ So for Eli, Bill wrote "someone like Robert Dionne." Then they got a call. It was Robert Dionne's agent.

For Lou Gossett, Jr., it was the same thing. "We were having really bad auditions for the Vortigaunts. 'Look, we want somebody speaking human language, but not human. It's like Vincent Donofrio doing Edgar in *Men in Black*. Or, like a really good example is Lou Gossett in *Enemy Lines*. It's perfect!"⁴⁸ Then they got another call. It was Lou Gossett's agent.

"That's when we got to see an Academy Award-winning actor."⁴⁹

Valve had considered "big name" stars, but they didn't want to head in that direction. "We didn't want the voices to take over the game. And a classic example for me on that is *Princess Mononoke*. Watching that movie with the English-speaking actors, I heard Billy Bob Thornton, Gillian Anderson, and they didn't sound like their character. They sounded like the actor. So we wanted people who would stay in the game, in the role."⁵⁰

Then there was the voice of Gordon Freeman: "Gordon will never talk. That wouldn't be Gordon."⁵¹ ■

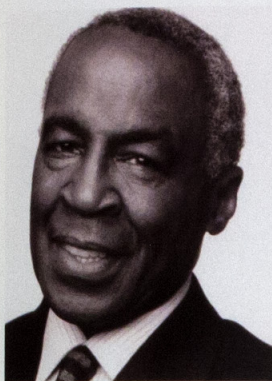


Great British actor Lionel Jeffries was the original inspiration for Doctor Isaac Kleiner's haughty vocal stylings

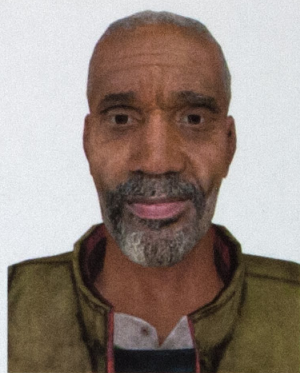
AN INTERVIEW WITH MICHAEL SHAPIRO

Michael Shapiro also reprised his role (actually roles) for the sequel, voicing both Barney Calhoun and the mysterious G-Man. His characters have more to say this time around, although in the original game, he "also voiced some secondary characters." Although he was known and had worked with some team members earlier, he still auditioned to land the roles. And lest you think this voice work was over in an afternoon, "It took quite a while... many sessions over a few years, actually. Each time I came in to record, they'd show me more of the game that had been fashioned. It was so incredible, really stunning stuff." One of the reasons (aside from payment) that he was willing to continuously hone his two performances was the script. "The writing is clear and evocative, and really drives the character. Wonderful material to work with, and I've voiced a lot of interactive games. *Half-Life* is uncommonly well written."

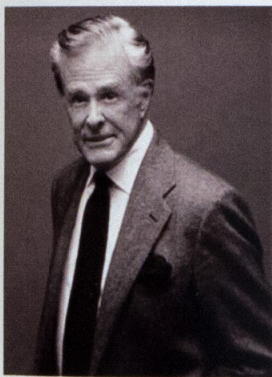
Although there was room for improvisation, the clarity of direction Michael received made the experience "a blast." In fact, Michael is thrilled to portray two opposite ends of the good-versus-evil character spectrum: "Who doesn't want to live life for a little while as a demonic, all-powerful, super-creepy manipulator? Or, for that matter, as a nearly indestructible wisecracking undercover Army guy?" In the end, Michael's affinity lies in the dark confines of the G-Man: "Barney is a hoot, and I sympathize with him, but G-Man's got such great lines."⁵³



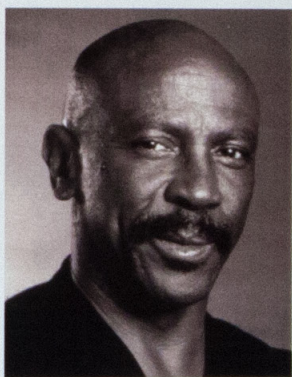
Robert Guillaume plays Doctor Eli Vance.



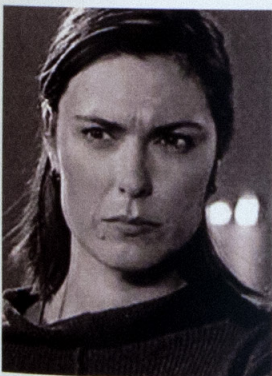
Merle Dandridge plays Alyx Vance.



Robert Culp plays Doctor Breen.



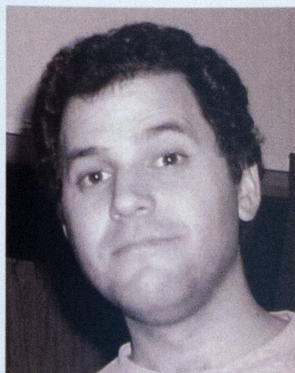
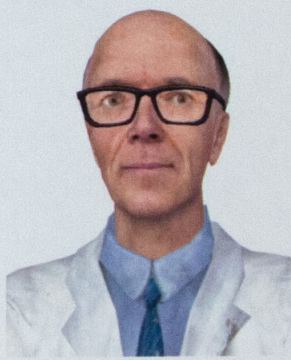
Lou Gossett, Jr. plays the Vortigaunts



Michelle Forbes plays Doctor Mossman.



Hal S. Robins plays Doctor Kleiner.



Michael Shapiro plays both Barney and the G-Man.

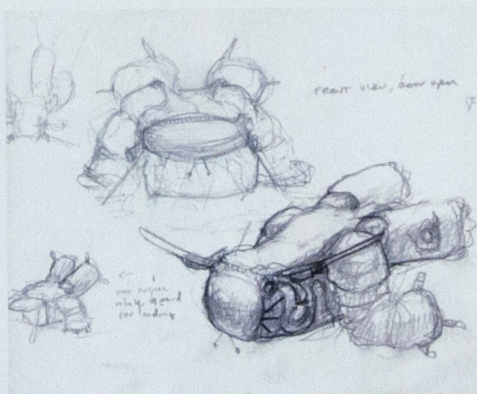


Let's Get Physical:
World Manipulation
and Weapons

.15

"It doesn't matter what we cut, so long as we cut it and it gives us the time to focus on other things, because any of the options will be bad unless they're finished, and any of them will be good if they are finished."

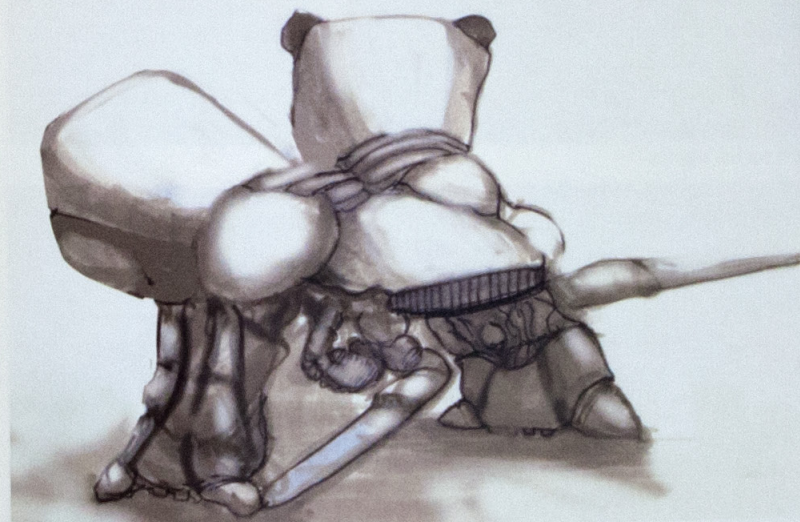
—Gabe Newell



►► CRITTER CONTROL

Animating the monster or unfriendly entities was another key task for four members of Valve, as Bill Van Buren explains. Bill had previous experience in the field, having worked at Disney. “I worked on feature animation for the movies *Dinosaurs* and *Hercules*. Mostly computer stuff—I’ve been doing it since 1986.” The biggest difference between the two mediums was the degree of linearity. “All the films are very linear, whereas the games don’t have that luxury; we have a camera that usually sits still, and we don’t have a linear story. We have lots of animations that have to fit together, run together, and work well together, especially on the creatures. We can’t control the creature exactly, as it has its own AI, but depending on what you do to it, it has to interact with you. It has to look good from practically every angle, too.”

Animation conceptualization began when Bill Fletcher (animator) started in December 2000. While Ted Backman reprised his role as the main monster-maker, Bill took a stab at “the Combine machinery and the creatures.” Throughout the process, there’s been a particular enemy Bill has had the most pleasure maneuvering. “The strider—the big creatures like that are always fun.” Bill has lost count regarding the number of animations the strider has. “The more we use, the more we will add to it. But it has its basic movement animations, and we have a really cool way of movement that can work well in terms of how it navigates. In some of the games, you see enemies pop up over here, then they pop up over there; they run into a wall. We have a system where we actually have them walking in eight directions. Always facing forward so they will walk backward, forward; walk this way and you can blend it depending on how his eye cable [the AI’s sight] acts. No matter what direction he goes in, he will blend perfectly in there.” In order to place giant spindly killing machines in an enclosed city, different team members had to work well together to ensure striders weren’t caught in scenery or alleys. “We just made sure that we worked it out from the designers. They asked, ‘About how big do you need for us to make the streets and navigate them?’”¹



AI advancements continue to impress, as Bill describes the strider's smarts, even in the tightest of places: "Basically, it could almost move anywhere. It actually knows where the ground is. I don't have to animate. There is a part in the E³ demo where it is walking down the rubble. I didn't have to actually animate it because it is AI. We just set up a point saying, 'Start here, go to here, and then kill.' It will detect the ground and it will actually put its leg on wherever the ground is. I just did the animation walking forward; we adjust the height of the legs, which walk and sway on the natural body."

Although every organism in the game has its own set of animation problems, the team has a blast "doing the big slower creatures. The heavier creature is a lot more fun with the weight. It's cool. You see something big moving around and you always get a good reaction." For more inorganic models, such as the Combine gunship, there was a different set of parameters to post, although all entities are commanded in a similar manner. "These parameters are basically just poses, and when the gunship flies around, we will use the poses. As the gunship is more rigid, all we would pose is maybe the tail turned over here, and the turn cocked this way so that it makes a turn and goes into this pose, and when it comes out of that turn it goes straight, and that really works out pretty well."²

Blood spilling needed to be animated, too, and the effects have followed the same path as the splattering of the original game. Viktor: "We didn't have to kill an animal! We painted it. The heavier a character is, the more blood they're going to ooze. And the same for bullet holes. Everything in the game has a specific impact decal that corresponds to the power it's been hit with, just like sounds and physics properties."³ >>



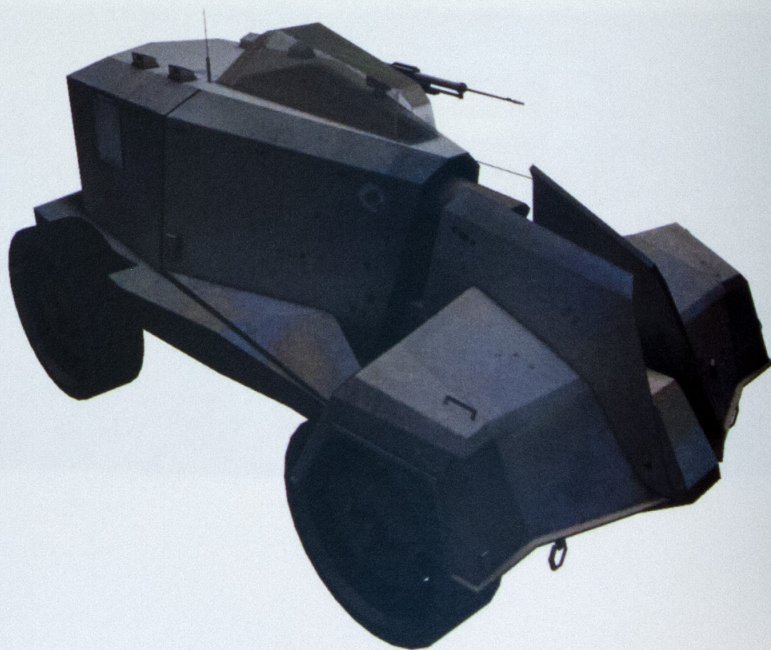
Other combine vehicles. The APC and Gunship are designed to look less organic; these appear earlier in the game.

ANIMAL INSTINCTS

Animating humans has its own set of difficulties, because everyone knows how a person interacts, gestures, and speaks in real life, and any odd, out-of-the-ordinary animation patterns would ruin the illusion that you're looking at "real" people. But alien life-forms present their own set of challenges, as there's no frame of reference, and a danger that the viewer won't believe the entity is "real" either.

Valve has a method around this, as Bill explains: "What I do is, I always try to base the creature on some sort of real animal or something, just because nature is a perfect example of all different varieties. But I may not stick with a particular animal for the same creature. Like the ant lion guard. At some point the inspiration was a big dog, then I looked at a big bull. For the strider I used kind of a giraffe/gorilla combo [laughs]. I wanted him to be graceful like the giraffe, but the way he kind of moves his arms, they really stand out like a gorilla."⁴

There are no athletes covered in ping-pong balls in motion-capture studios, either. "I'm not using any motion-capture," says Bill. "We want to create a consistent matter and consistent animation for everything, so there are no things that stick out and don't belong there." This includes segue animations: movement between one action and another so that entities don't jump between animation sets. "We have to keep them alive all the time; we can't just have this nice animated piece and all of a sudden, you know, they stand still and wait for you to do something. It is a big problem to keep track of." This led to a specific chronology in what the animators completed first: "With the ant lion guard, usually one of my first animations will be the idles just to get an idea of some behavior form so we can make lots of interesting behavior out of that. I only have them really for the creatures, mainly because the soldiers and such, we were going to be putting them in later. We didn't know if we would see the soldier not shooting at you, or if there was a metro-cop not harassing you [laughs], but the creatures, a lot of them were given more naturalistic abilities. We thought, 'What would these creatures do?'"⁵ >>



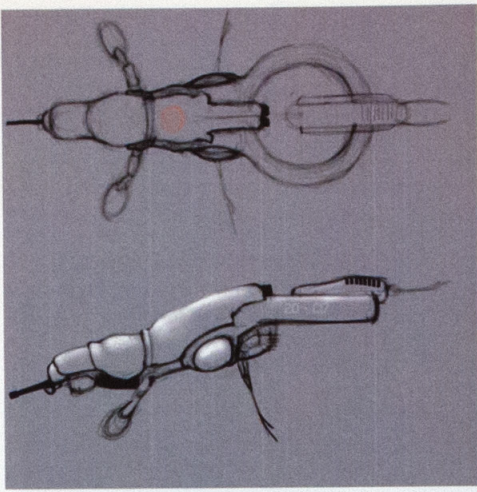


One of the many epic battle sequences featuring the towering Strider

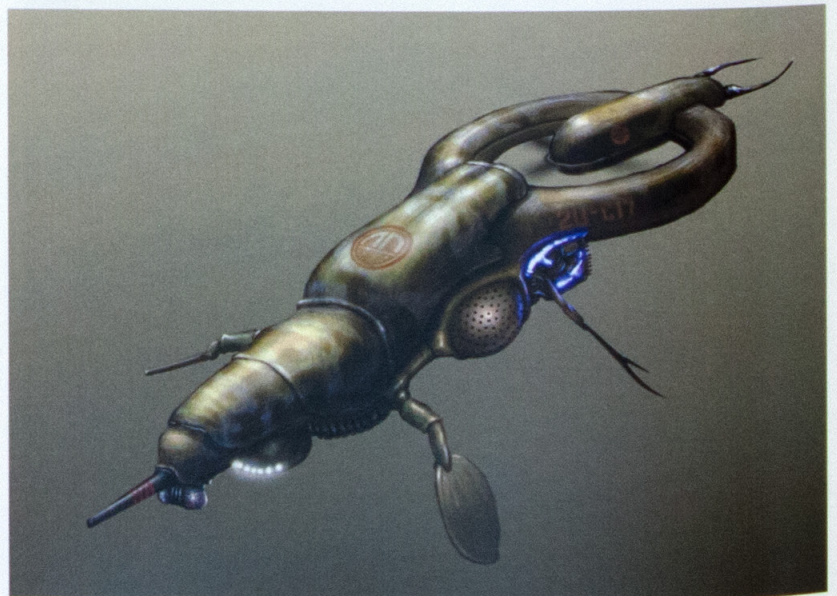
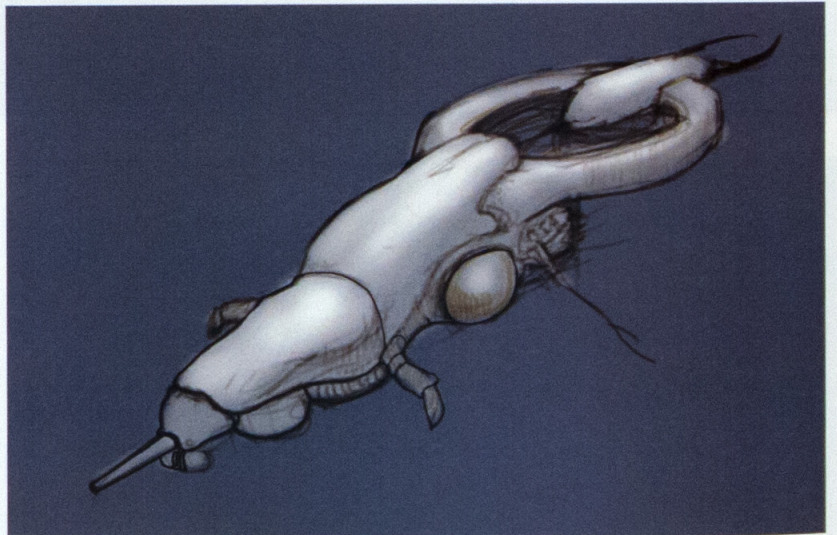
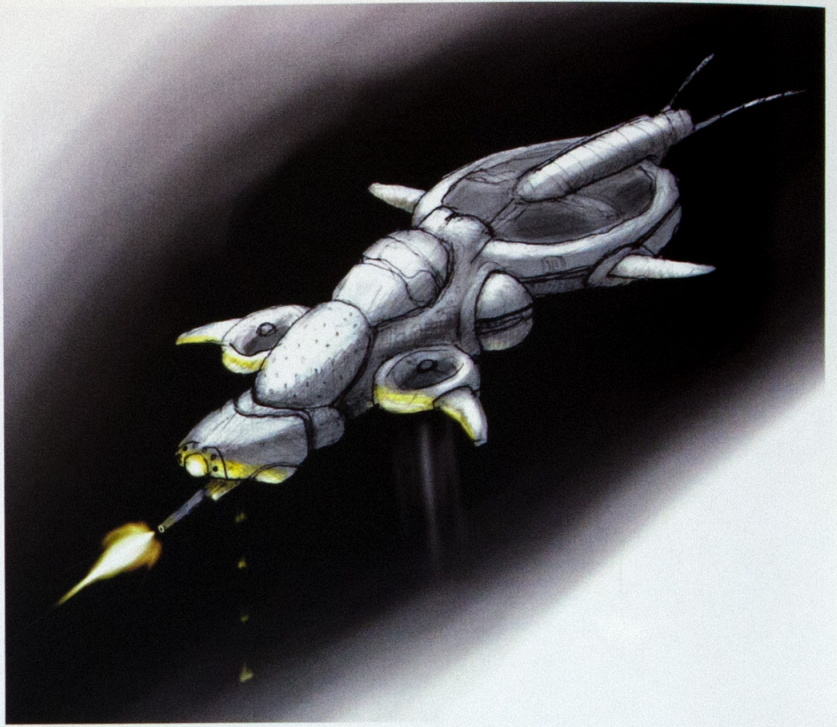


The Hydra, a removed creature, but one guaranteed to be back





The Combine Gunship, from model sheet to sketch to early design and final texturing

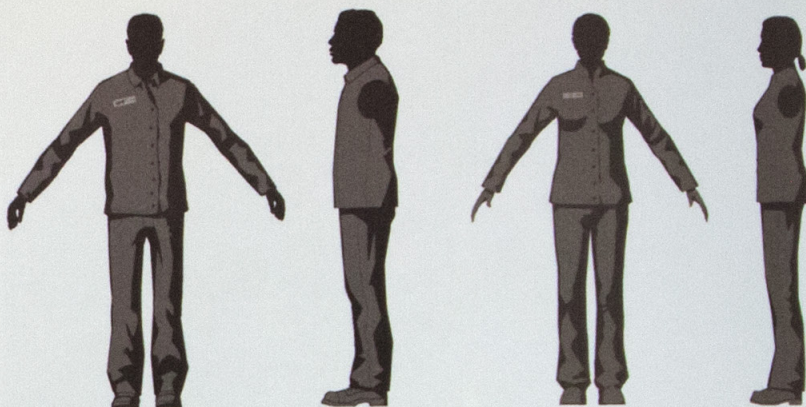




STRANGE SQUAD BEHAVIOR

Character AI doesn't always go as smoothly as the team would like. Steve Bond and John Guthrie know all about this: "We've had a lot of fun recently with friendly NPC combat. We started a board game called 'strange squad behavior' for your allies, when they are working and talking and fighting with you. We have seen some pretty unintentionally hilarious experiences." One that stands out was the land mine. "There was an ally who'd just run up the street and step on land mines. It was obvious that they weren't aware of them, and they'd blow themselves 20 feet into the air, and their gun is firing, and then they say something really comical, like, 'They should be aware not to step on the foot!'" In that situation, there are two possible solutions. Change the system so it works properly, or bury the land mines. John has a third solution: "You laugh at it long enough until programmer says 'OK!' and fixes it. I will drop the programmer an e-mail and say, 'Hey, my NPCs are not looking intelligent; they're walking on these things... they look dumb' and he will go in and make them aware of the obstacle, so he will do the right thing. He knows what to do, and I trust him to make the correct decision to either make the NPC shoot at the land mine and break it, or point it out, or step on it without knowing about it. But I can also make suggestions to him and he takes it from there."⁶

In the final months of development, Gabe Newell invited Bay Raitt to Seattle to act as a consultant for the game. He was partly responsible for Gollum's animation in *The Lord of the Rings* trilogy. "He had some time off before he was needed on *King Kong* in New Zealand," Doug Lombardi says. "So we met him at a graphics summit several months ago and we talked him into coming here and working on site as a consultant for the last several months, and helping to certainly polish the animation in the game."⁷ >>



The citizens of City 17, some of which help you out in your Citadel assault. Top to bottom: An early citizen concept and chronological in-game concepts (four examples).







Model for an in-game resistance fighter



Two rebel line-ups—fighters and medics

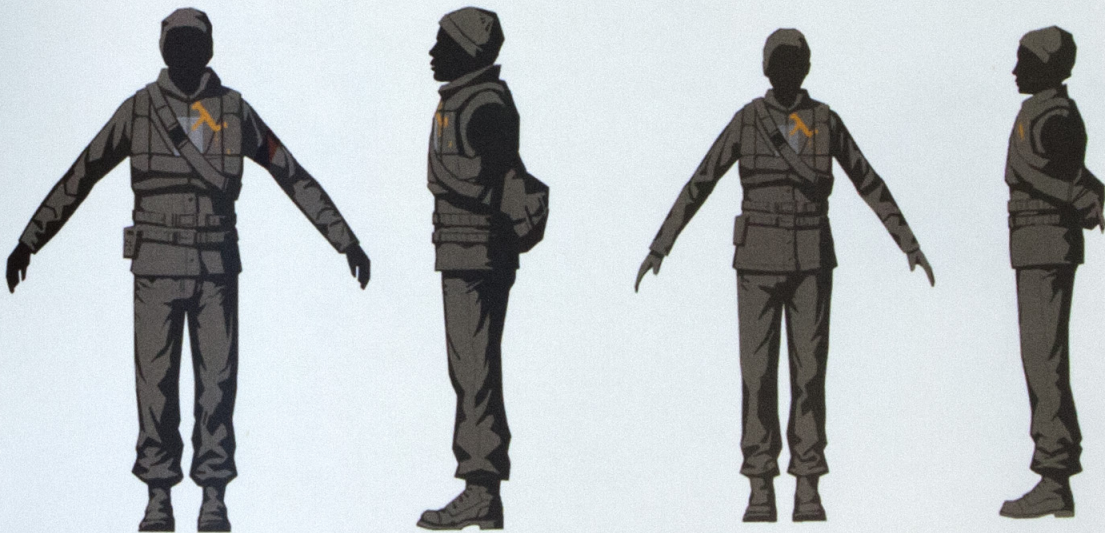
Resistance fighters concept art

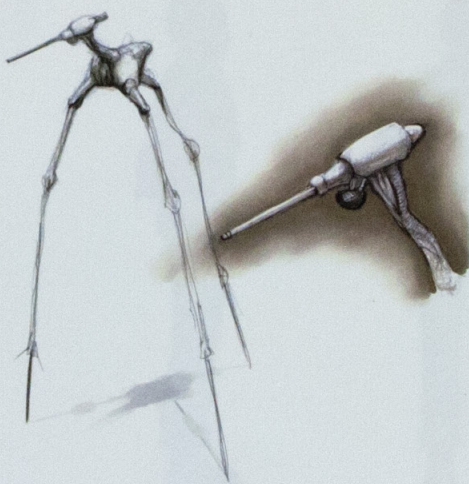
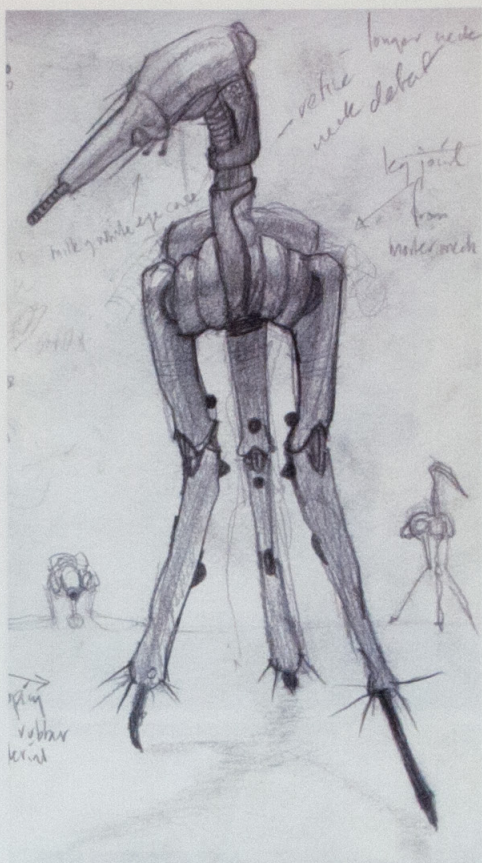


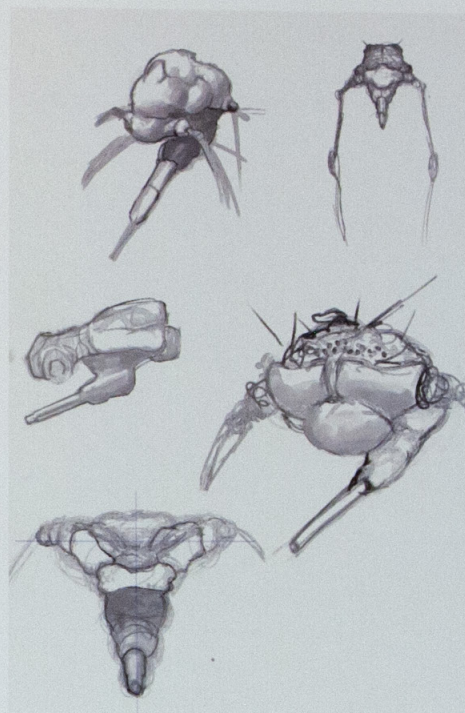


In-game texture sheet applied to male medic model

An in-game model sheet

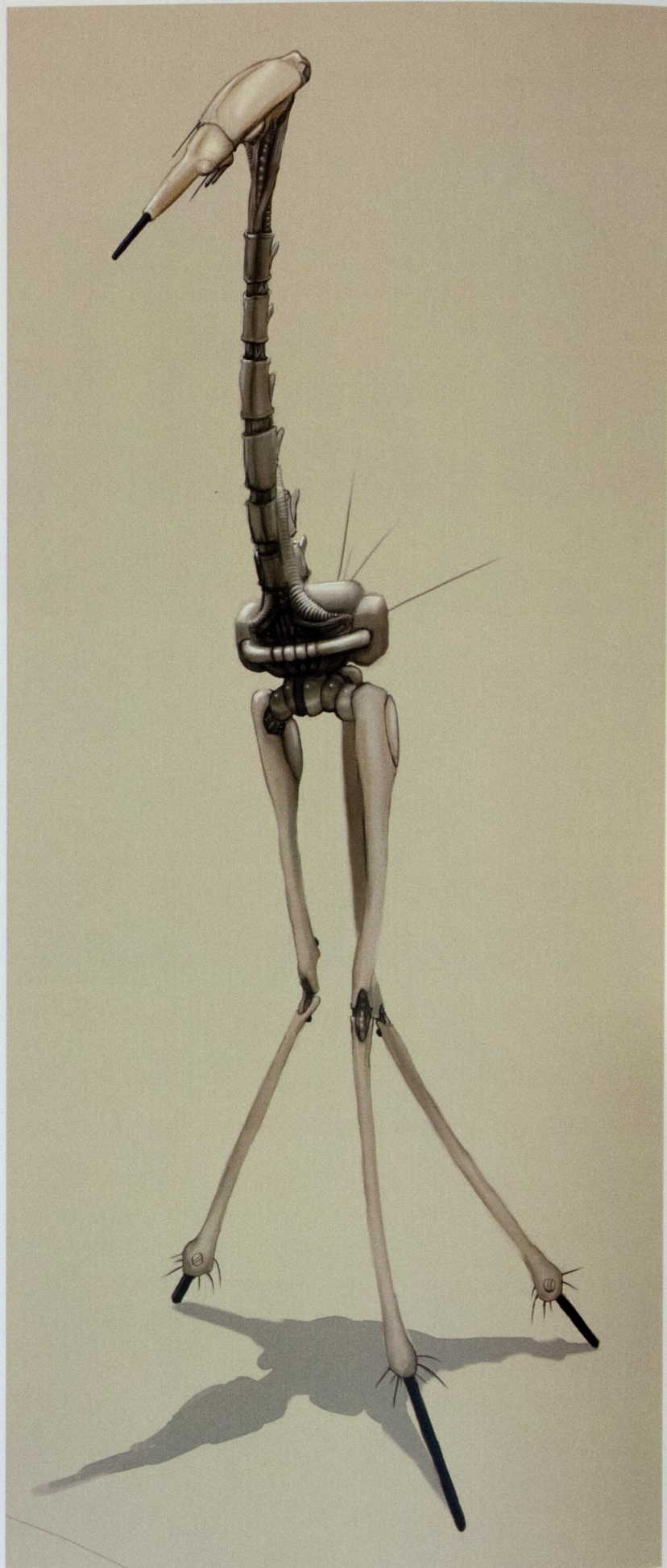






This spread and following page: Early Strider designs, followed through to completion. Redesign focused mainly on the head and weapon area.





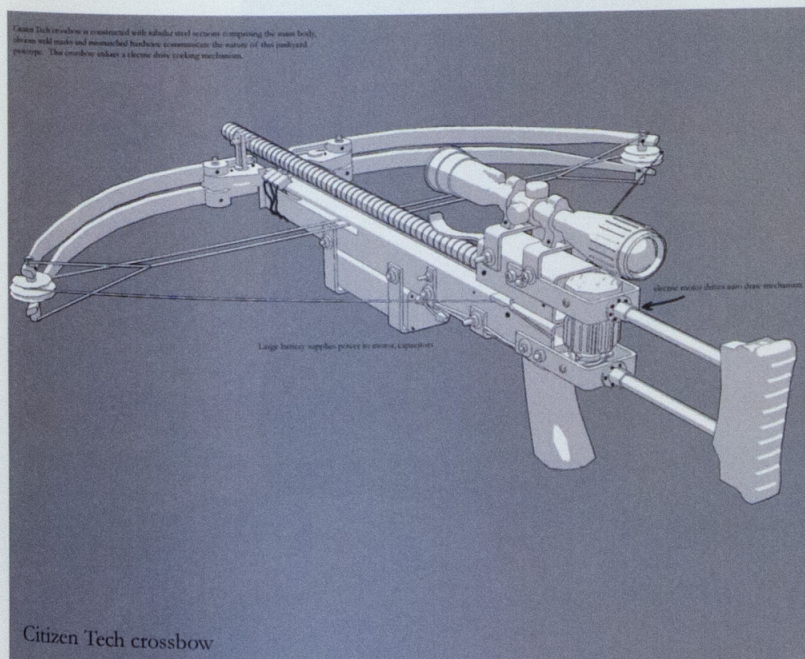
TED BACHMAN'S WEAPONS DETAIL

There's no point in meticulously animating Combine soldiers if you can't execute them with a precise grenade strike. Ted Bachman is also partially responsible for the weapons Gordon wields: "I am a big military history buff. I'm into weapons and things that blow up, and getting to pick a set of them that the world gets to play with is just great. I love it! I have a huge responsibility to get the coolest stuff in there as possible." With around ten weapons locked into the final game, Ted estimates the team created three times that number, including the unused flare gun the Combine police employ to call in gun ships, but Gordon doesn't pick up.

"We have these different strategies midway through production where we were going to do a game where you were always getting stripped of your weapons because you were captured, or you had to ditch everything to get into a submersible to go down to the bottom of the ocean. That was part of the story for a while, so we had this notion that you would constantly be getting a new gun to kind of fill the same approximate game-type role. We had three submachine guns, three assault rifles, heavy machine guns, and this vast array of weapons... Kalashnikovs and MP5s... all kinds of stuff." This was toned down after that gameplay element was shelved. The weapons were copied, then changed so that the weapons can be discerned from real-life equivalents.

While others were plotting the evolution of the gravity gun, Ted focused on what he calls "the Swiss army knife of weapons": the MP5-style machine gun, one of the main weapons in *Half-Life 2*. "If you don't have a direct line of fire, you can launch grenades at somebody. It has a pretty high rate of fire, so you don't really have to be that accurate, and it is a good weapon for people who are not specialized in any sort of tactics. You can basically spray and pray or launch a couple of grenades; it is the weapon that I have the most luck with!"⁸

"In *Half-Life*, it was a model built around the MP5sd, which is the silenced version, which is funny because it wasn't silent in the game. That was always something that drove me crazy, but people just didn't like it silenced." For *Half-Life 2*, Ted brought in the successor, the MP7. "It was brought to the market just recently. It is actually kind of a revolutionary gun. In the real world, it uses kind of a smaller caliber bullet than the MP5 does. This one has a custom round that goes along with it, and we have further modified it to have it be more like its predecessor and have a small grenade launcher underneath it. Instead of the 40mm grenades that were in the first one, these are 20mm grenades. These air burst depending on the internal fuse, so you can set a range on them, and then they air burst above the target."⁹ >>



Detailed concept work for the Crossbow, one of the returning weapons, and the in-game model



WE NEED BIGGER GUNS

Transferring that into the game, however, was troublesome: "It is really hard to manage an air burst with a mouse, so the gun that had it originally is now something completely different, so there is really no correlation between the art and the behavior, because a lot of times it just doesn't carry over into the game as well. We weren't going to add new keyboard commands. Originally we tried to set the range where you point at the ground right where you wanted the thing to explode, and you could pull down the right mouse button and aim it up in the air, almost like a auto focus on a camera, but it was just too confusing." So they removed the air burst option. "It actually works a lot better using it as a regular grenade, but since it is small caliber, we can fit it onto a small gun so it doesn't have to look like a giant M60 with a huge barrel underneath it that launches cannonballs...."¹⁰

When there are larger airborne enemies filling the air with flesh-ripping machine-gun fire, it's time to break out the bigger guns. "We needed something that could take down some of the heavier Combine equipment. The RPG is one of my favorites because you actually have a good degree of control. It isn't like you're using a rocket camera or anything—you still have control of yourself and control of the weapon at the same time. I remember doing acrobatics with the RPG and getting it to do loops, and everything was really fun, so we had to do it. That is part of what *Half-Life 2* is all about; keeping the good stuff and expanding upon it. We knew we had to capture the kind of the feeling of the RPG, and the new weapon has been very fleshed out." However, the assembly of the RPG was initially a rush. "I did that about three days before the E³ demo. Somebody said, 'We are going to have a rocket launcher in the game.' Rocket launcher? E³ was just hours away now, so I did that between midnight and five a.m. two days before we had to be done."¹¹



Gordon's HEV Suit is back and improved this time.
Gordon also uses combine iron maidens to travel
around in, against his will.

THE GRAVITY OF THE SITUATION

But the manipulator weapon, or gravity gun, was Valve's biggest advancement in terms of offensive ordnance: a portable forklift able to lift and drop, or throw organic or inorganic objects up to the size of a small car across the environments. The device wasn't even originally on a short-list of armaments; it was used as a level design tool for placing objects. Gabe describes the initial stages of designing such an instrument: "That was an ongoing process. First there was the issue of physics in general, and recognizing, 'Gee, if physics is going to be that important, you need to have direct input, not indirect input, into that system.' Physics isn't something that just sort of happens as a result of your actions; you need some way of pushing things and pulling things."¹²

To begin with, Valve erroneously took the Rube Goldberg approach of "exerting maximum effort to accomplish minimal results,"¹³ after the Pulitzer Prize-winning cartoonist, sculptor, and author's "Inventions" artwork showing elaborate schemes to solve straightforward problems. Gabe explains the initial physics utilization had a "kind of Rube Goldberg aspect in mind, with building and manipulating as being part of it. The problem is that a lot of that stuff ended up not working the way we wanted it to." Early tests of the manipulator were great fun: "For example, early on we had a welding functionality in it." However, this led to "people always doing goofy things where they would take two tanks and weld them onto a car, and then the car would take off, and it was incredibly amusing." Zombie carcasses and stalker cadavers weren't immune to this levity. "They were taking corpses and putting them in the tank/tank/car and putting each others' faces on them, and doing little movies, and distributing them around the company. There was this toolbox, and the problem was that it was hard to build a pathway through that; you could build a strange kind of game with that kind of approach, and people would do all sorts of fun and weird things, but it's hard to build sort of an action story with that kind of experimentation."¹⁴

Working to perfect the physics model, as Erik Johnson informs us, was the game engine element over which the team lost an inordinate amount of sleep. "Physics is something that you can't do even slightly imperfectly. People know how fast something hits the floor. They understand gravity at the very core level. That was a great deal of work to make it so that we feel it's perfect. And perfect visually, rather than perfect mathematically.

"Over time, Jay Stelly (who did all the physics work), built a room in the game that he could use to test. You know, pick up objects and throw them and make sure that everything went correct. Or pick up a human model and throw it and make sure that it ragdolled correctly. And it caught on that the people were excited enough to see the designers build the game around that. The more subtle things we can do, for example, are with the vehicles now that we have large open spaces. The vehicle's all physically simulated so it feels free. It has springs where the shocks go, and then the shocks have an actual tension, and tires have the friction constant; looking for standard pavement. All this intertwines through physics. We also created more dramatic effects like when a large building or an enormous monster like a strider falls. That's all physically simulated, and so it looks a lot more interesting."¹⁵ After the physics system was finished, it was robust enough to handle the abuse the team was throwing at it. Now there needed to be a way to transform it into useful application inside a single-player action game. Which was already in jeopardy. >>





While there are no AOD Jeeps, you can drive an airboat (above), and an off-road scout car, both with impressive weaponry and maneuvering capabilities.

“BUCKLE UP BONEHEAD, ‘CAUSE YOU’RE GOIN’ FOR A RIDE!”

John Guthrie and other designers spent so much time playing around with the physics engine and objects, that it became addictive and ate into development time. “We probably would have shipped sooner if it hadn’t been for physics, because we spent more time playing with it than actually doing our job.” The testing out and building of contraptions was too captivating to stop fiddling with: “We don’t have a vehicle in the game with a giant spinning propeller blade that severs zombies into pieces, but I built one. God, I must have loaded it up once or twice a day. It was called the AOD Jeep,” in homage to Ash’s whirling vehicle of death in *Armies of Darkness*. “It was because of the fact that we do have zombies that do get chopped in half and we do have these engines connected to blades that cut them in half. And we do have a hierarchy system and a physics system and a vehicle system, and they all work together. I was able to trust the engine to blend these components together—without any development at all.”¹⁶ Then the zombie culling began.

Alas, John wasn’t able to pursue this hobby to its logical conclusion. “Yeah, I haven’t built the helicopter blade that impales zombies yet, but I am going to build a whole army of vehicles that just mutilates zombies in interesting ways. In the same way, you could probably give somebody a room and teach them how to build a couple of physics objects and they would have fun playing with that forever. I did!” Dario notes that this is just part of every developer’s progress. “There will be another game. Our favorite feature will get cut, so we keep those two things in mind. We try to get our favorite features in early, and shift the design until it looks good enough, but you are never happy with it when you let it go. When we shipped *Half-Life*, there were hundreds of things we wanted to do, but that’s what made *Half-Life 2* come out so well. We carried all those items forward.”¹⁷

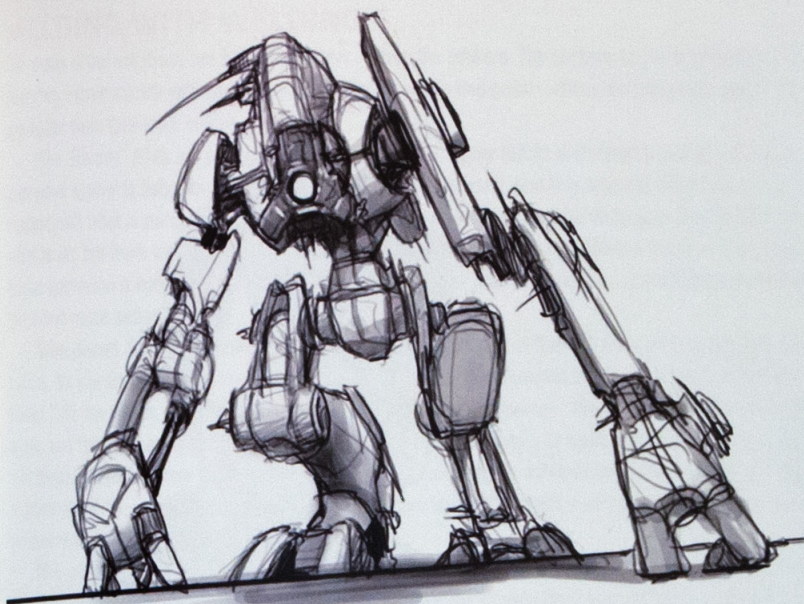


THE DANGER TED ACTION PLAY SET™

Windmill-bladed zombie jeeps were just the start of the “messing about” period. This was the “welding” period that Gabe mentioned earlier. “There was this time when, as a player, you would glue physics objectives together. This gave birth to what we called the Danger Ted Action Play Set™.” This was based on Ted Backman, because “one of the citizen characters in the game has Ted’s face, so we had this rag doll Ted in the middle of the desert, and there was nothing around but cars and boards, ropes, plants, hooks, and canisters that spray gas out of the end when you shoot the little knob off, right? So you can take this glue weapon, and you could glue a wing to the car, and then glue canisters on the wings, stick Ted through one of the windows, and shoot the canisters off.”

The results, unsurprisingly, were both spectacular and hilarious: “It was like this Volvo with no wheels and wings shooting and skipping across the desert. I’ll be fired if they know how long I was playing with that.” Ted’s Volvo was removed. “We then stuck two gas canisters on his back, and it became the Ted Jet Pack™. He goes flying way up in the air, but you can glue over his feet so he doesn’t go far; he gets slammed back down to Earth.” When development was reined in, the team looked at these physics demonstrations. “You look at it and go, ‘That is a completely different game.’ That was completely different, but built on our technology. Someone’s going to make a great mod with that type of stuff.”¹⁸

But there were positive applications based on these larks, involving Dario, John, and Steve’s favorite creature, outside of Action Ted: “Zombies are really nice. They are dehumanized, but human enough so that we can do some of the more outrageous things. That is what Ravenholm is all about. You got the zombies that just kind of bumble forward; you have your pick of which way you want to get rid of them. ‘Oh, just chop this guy up in the mower, drop a car on him, or whatever.’ Zombies have always been our classic fun time.” John again: “It is like a really interactive creature—you can cut him in half and the top half will keep coming, or you can cut him off at the neck, and the head will keep coming as a headcrab, or you can set it on fire, you can smooch it, blow it up at different times; sometimes multiple crabs are attached and zombies will throw them at you... Yeah, if you just mix three or four in a room and get yourself a weapon, you can figure out eight ways to destroy them.”¹⁹ >>



Dog, Alyx’s pet, teaches you all you need to know about catching objects.



MELDING WITH WELDING

"So many of our creatures are fun," says Steve. "I love the soldiers. The soldiers are really good as far as how they communicate with each other, how they choose to find cover—those are interesting things that are better than they were in *Half-Life*."

"The 'Barney' allies are pretty good, too," offers Dario. "They talk to each other, and they talk to you; they have emerging behavior when things are going on in the world, and they respond. What they say is in context with what is going on. They will continually surprise you. You can order these guys around, tell them what to do, tell them where to sit for an ambush, and there is a completely different outcome every time. Facial animation is believable. There are all kinds of reactions: fear, pain, victory... it really glues them into the world much better."²⁰

Gabe pinned down the problem during this process: "Part of it is that nobody's really used this stuff before, so you don't know what's going to be compelling. So we were just trying out a bunch of different things." At the outset, the first main plan was a virtual construction set. "We went down that road for a while, and that was being done in concert with getting all of the physics to work, but we just kept bumping into these problems where the rest of the game wasn't matching up with this tinker-toy approach to what physics would be, and that people wanted sort of a more visceral interaction with things. That's where the current manipulator design grew out of."

Mod makers eager to experience the 'tank-welding and wielding' approach needn't worry, though, as Gabe mentions that "all that code is still sitting around and the weapon itself may still be there if you know the right loopholes. It was a lot of fun, but it's a different kind of game. At the end of the day, we had to narrow the experience—that's an important part of something like this, having a certain level of consistency in a lot of different things, so even though that's really cool, it's not really matching up with what we're doing in the rest of the game."²¹

As this in-game screen shows, you can also employ the Gravity Gun to push back enemies, but nothing beats slamming scenery into foes, especially ant lion guards.



WHAT'S THE RESONANT FREQUENCY, KENNETH?

Despite the necessary toning down of the weapon, being able to throw or deposit thousands of objects in the final game is still Gabe's favorite: "Yeah, absolutely, that one's a hoot because it gives you the most options for finding and discovering interesting things to do." Gabe's fondest memories of toying with the manipulator are varied. "I'm a sucker for some things, a lot of times I've had the most fun just inventing things or being surprised by things.... For the longest time, I enjoyed playing catch with myself, seeing how high I could throw something and bounce something off and catch it before it could hit the ground again. You can do that in the game, and it's for just that reason I, probably more so than most people, found that amusing. I also think that almost everybody seems to have [implemented] surprises where they go, 'Oh, well, of course it works that way.' For me, I was doing a play test and was playing with this tire swing, and started to try to drive it at its resonant frequency, so it would start swinging back and forth, and then I could get it going, and my goal was to get it to loop all the way over, and then I did get it to loop all the way over, and the rope started to get shorter, and so I moved forward to hit it again, and it hit me and killed me! [laughs] And I was like.... 'Oh, I did it, that's really cool.... Oh, it killed me.' The tire-swing was reacting to me; I'm able to change this behavior in this pretty cool way, and it wasn't that the world had killed me. It was that I had found a really clever way of killing myself that the game had allowed me to do. So it wasn't really so much about realism as it was discovering the ways in which the game and this world were reacting to me in ways that I hadn't seen before, and then finding out that there were surprising and interesting consequences."²²

There was a realization during the development of *Half-Life 2* that there was a breadth of action and a chain of events in the game world that was more than the dismantling of a crate, or the exploding of a barrel to destroy a creature. The physics made Gabe "attend more to what's going on; all of a sudden, things that I'm pushing around have the potential not just to do what I want them to do, but of doing what I told them to do, which isn't necessarily what I wanted them to do, which adds a pretty interesting dimension to the behavior of the world, to get bitten like that."²³

Ted Backman isn't fully satisfied, though: "I want to pick up a headcrab with the manipulator and then launch it at somebody and then have it attack them. I don't know if you have ever picked up a cat and tried to do something with it, but once they get picked up they just turn into insane killing machines. So having a headcrab getting picked up and just getting launched at whatever, that would be really fun."²⁴ >>

FEARSOME PHEROMONES

Both with the physics engine and in general terms, there were dozens of extra elements Valve hypothesized about, mocked-up, and even created to a point where they were working in Gold Source. This is another problem the company has yet to overcome. They create too much: "One of the things that we learned about ourselves this time," Gabe states, "is that we always try to do too much. However, a lot of its value is in the refinement. There's this aggressive statement of this principle, which isn't entirely true but it's still interesting: It doesn't matter what we cut, so long as we cut it and it gives us the time to focus on other things, because any of the options will be bad unless they're finished, and any of them will be good if they are finished." This mantra was carried over from original development, as Marc described in the fourth chapter. "The key thing," Gabe continues, "is not which things we decide to focus on, it's that we focus on them, and we've seen that over and over with weapons and monsters and levels—that one of our worst enemies is trying to do too much, rather than narrowing our focus in, and whenever we narrow it in, that set of interesting problems gets figured out, and interesting ways of using whatever it is that's been created become obvious. Having stuff halfway done is the greatest enemy of creativity, both on the team and for the player."²⁵

Herding ant lions—soon to become the premiere method of letting previously vicious and spindly killing machines tend to your combat habits while you sit back and watch the AI at work. Gabe explains: "That actually isn't super-hard to program. In a sense, that grew out of a pretty straightforward question. 'OK, we want some creatures that are going to walk to you; how can we let you control them without it being clumsy?' Ant lion pheromone balls really grew out of almost a formal but interesting conversation about design. The introduction of the creatures, and the relationship you develop with them, and then reversing that, having that be really useful to you, how can we make more of the world react to you." Originally a hated adversary, "we had the reversal where we wanted the ant lions to be your friends, so why don't they just start doing what you want them to do? This gives you another piece of the world that seems to be doing what you're telling it to do, or acknowledging that you're in the universe, so that's the kind of thing that actually ends up being a product of how we think about game design."²⁶



Ant Lion sketches and in-game models; note the skin color variations. These vicious creatures turn from fiend to friend after you find their Pheromone balls, as shown in the two in-game screens.



THE YEARNING AND LEARNING CURVE

The final problem Valve faced was a procedural one. The team's general consensus about driving the storyline is straightforward to hypothesize about, but requires commitment and time to perfect. Gabe takes us through the process: "We tend to think about how much the story has moved forward. We look at each segment of the game and say, 'OK, the story needs to be moved forward; we need to see something interesting; we need to see something old in a new light.' We are thinking about what each section of the game needs to accomplish, what is it that it's teaching the player that they need to know in order to move forward in the game, because we have to teach you about all sorts of behaviors and tricks. This makes the job of teaching you easier, or else we just forget and assume that you knew how to do that without sort of training you. The challenges that people face need to vary, so we have pacing, which is really important, so we go through the game and say, 'OK, how much time have you spent fighting?' Then we watch our playtesters and say, 'OK, we need to break that up.' The challenges that we face in each area—usually we didn't think of them as puzzles—have lot of variation; the local goals that you have were sort of the responsibility of each level design team to come up with something natural."²⁷

Problem solving isn't about entering rooms and only stepping on the black tiles, as Gabe is quick to point out: "They're not like chess puzzles, where you have seven moves to get this rook from this place to that place. They pull you into the world, and hopefully pull your attention to things, like, 'Oh, right, if I see machinery I should think about using that.' And sometimes we put those challenges in front of you to make sure you know how to do stuff. You don't always have to do it, but early on, we'll try to say you have to do it this way, even though it takes a little bit of violence to prompt you, and takes you out of the sense of 'immersiveness' a little, just to make sure that we know that a player who has progressed beyond this point has figured something like that out, so then it becomes available to us as a design method."

There is no training level in *Half-Life 2*. There doesn't need to be. When you reach the dune buggy, for example, you soon learn rudimentary driving techniques. Then the player realizes, "Right, I've got a turbo on the car, and the only way you're going to be able to get across a gap is to use the turbo. From then on, we can assume that you know how to use it."²⁸ This method of level creation, making sure there's a subtle way to introduce each new gameplay feature, then re-introducing it later on and assuming the gamer has learned how to react to it, is key to the fluidity of the single-player experience. ■

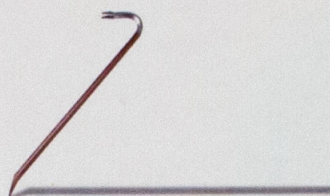


The Final Push:
Half-Life, Full Circle

16

"It's great to be able to show fans and hear them say, 'That is cool!'
It brings a perspective back that's hard to maintain
without having the connection to our fans."
—Gabe Newell

Next month



The image that started it all (again):
Edge magazine lets the crowbar out of the bag.

►► CLOGGING THE INTERNET: *HALF-LIFE 2* REVEALED

Half-Life 2's existence was revealed to the public on April 21, 2003, thanks to a crack team of Dutchmen. Doug takes us back to that point: "News broke about the game, and there were, like, 14 different mags that had it simultaneously. The very first mention, however, was *Edge*." The British "boutique" gaming magazine, once twinned with *Next Generation*, "had put a 'Coming Next Month' and just the crowbar on the back page. *Edge* tipped their hat to it, and people started buzzing, and the NDA [non-disclosure agreement time period, after which information could be released by media] was on Monday, April 21. Because of the time difference in Europe, one of the mags in the Netherlands, *PC Zone*, got out a little bit earlier than everybody else, and their cover was scanned in across the web really fast."¹ The next time gamers would see *Half-Life 2* would be at the Electronic Entertainment Expo, or E³.

The two E³ shows in 2003 and 2004 were the times Valve introduced its new Source engine technology and revealed additional key elements to a finished game, respectively. Media outlets were requesting *Half-Life 2* exclusive covers before this time period, as Doug remembers: "We had cover offers from *PC Gamer* in December 1998 for *Half-Life 2*. As soon as we finished the review of *Half-Life 1*, they're like, 'we'll give you a cover exclusive! But at that time, there was nothing to say other than, 'Yeah, I think we're going to make it.'"²

Gabe knew that E³ would be valuable in obtaining outside, unpolluted data. "We tend to get a lot of feedback around E³ because we talk to a wide variety of groups. We talk to the press, we talk to all the big developers, we talk to our fans, both at the show and later, after they've reacted to the information presented. That usually gives us a pretty good idea if we're on the right track. The feedback we were getting from people was, 'This is a great game; I want to play this game.' This was at the 2003 E³, the first time we really showed it publicly."³

Aside from the demo rooms, there were highlights from different levels in progress. Ted's finest moment involved the strider battle scene. "The thing that I am most proud of for the 2003 E³ demo is the main gunshot on the strider. I had a little storyboard and I didn't even think we could do that effect in the engine, but it worked and it looked great. Because of the particular arrangement of legs on the strider, you can tell it is building power. We tried it on the gun ship, but because there are no big, long, straight legs; it just looks like the thing is shrinking. You can't really see anything because it is against the sky. But with the strider, it worked really well."⁴

In August 2003, Steve and John's main focus were these strange, unplanned errors that the AI characters were exhibiting. "John will have a scenario that we have been working on for weeks where a bunch of citizens run up and down the road. Then we work on this land mine that we need to put in with the intention that it helps keep the players' movement governed. It just didn't occur to anyone that we hadn't bothered to make the citizens aware of it! Suddenly they are running up the street just getting blown up." Just prior to that, for Valve's E³ 2003 showing, Steve and Dave perfected the "rag doll magnet." "This allows you to influence the forces exerted on a character when they die. This is a 'rag doll' death so you get that Hollywood-style guy that flips over the railing when he gets shot. It was really simple editing. That was actually what we called the 'medhack' part of the demo, when the burning soldier shoots his gun and falls into the pit."

All this manipulation of Valve's rag-doll physics stemmed from the settling of old scores. John tells the story: "That was sort of revenge on Gabe, because he was beating on me throughout *Half-Life* to figure out how to do spectacular Hollywood deaths. It was coming up to E³, and it needed something in the action to draw the viewers' experience up. We didn't have physical simulating characters in *Half-Life*—it was a hard problem—but in *Half-Life 2* we do. Because Jay Stelly made a complex system elsewhere, we were able to come up with some simple solutions that made a big difference."⁵ >>



The new Lambda logo, encompassing the old with the new



The first *Half-Life 2* screenshot, showing a firefight against an untextured wall

A selection of magazines covering *Half-Life* in the lead up to the game's release





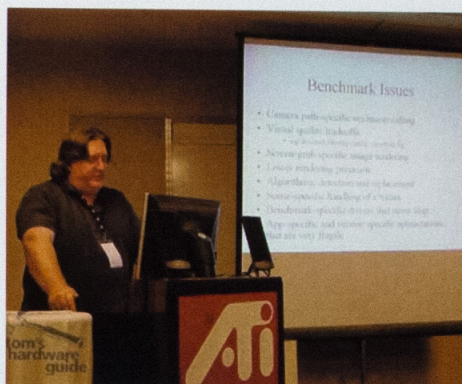
The E3 demo introduced expectant gamers to a variety of impressive effects that Source could offer, including movable cameras that worked in-game and beautiful sunrises that dappled off water.

E³ EXPOSITIONS

The difference between the showings in 2003 and 2004 was easy to describe, because 2004's show allowed Valve to say: "OK, we now have confidence that this game is going to be very exciting to people, that this game is going to be something that our fans are going to respond to really well." If you stood in the lines around the small black cinema at either of these shows, you would remember the excitement, the free T-shirt, and the demonstrations of the Source engine's power. Outsiders were looking in on Valve's years of work. "You spend so much time talking to each other, you aren't really sure if your reactions are going to resonate with fans. It's great to be able to show fans and hear them say, 'That is cool!' It brings perspective back that's hard to maintain without having the connection to our fans," Gabe says.⁶

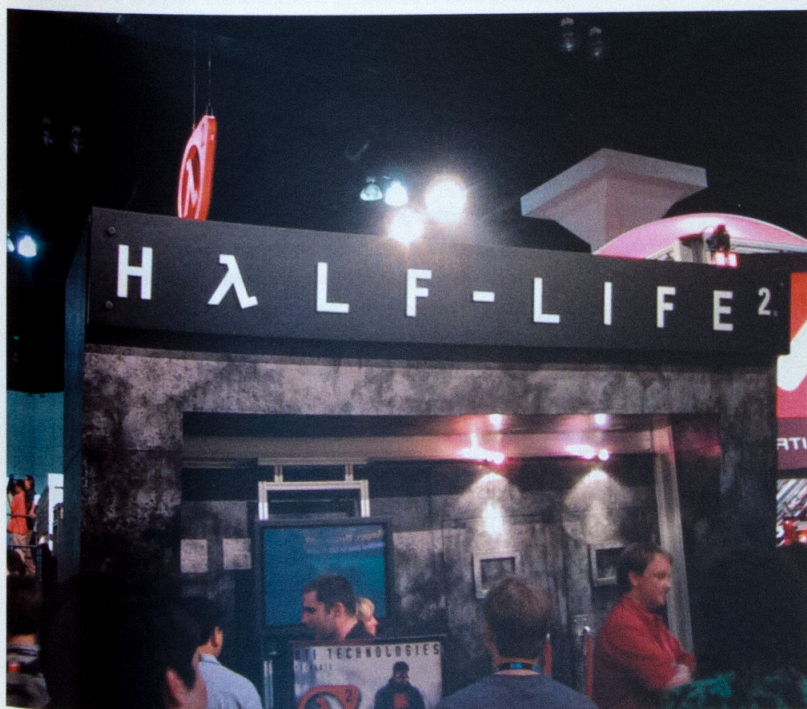
Unlike the first *Half-Life*, there was never a six-week window where multiplayer—almost as an afterthought, previously—was implemented because, as Gabe says, there wasn't any need. "We'd never worked on *Half-Life 2* multiplayer levels; we were always thinking that *Counter-Strike* would be a great solution. We weren't telling people what the multiplayer solution was, so we just wanted it to be a surprise from a marketing and PR perspective. Creating another deathmatch using a different set of weapons didn't seem to be a particularly *Half-Life 2*-esque approach, whereas taking the most popular online game and then updating the physics seems to be the kind of thing that would allow the greatest number of people to be playing a *Half-Life 2* multiplayer mode as quickly as possible."⁷

Although *Counter-Strike* is still popular, Gabe realizes the need for further advancements in multiplayer gaming, now that he's happy with single-player innovation. The two are "really different design problems—we've been working hard on a set of interesting answers with *Team Fortress 2*; that's where we've been spending the bulk of our time...the next generation of multiplayer stuff. The *TF2* team has a hard problem, which is, if it's *Counter-Strike*, then there's no need for *TF2*. We've already got *Counter-Strike*, and now we've got *Counter-Strike* working on Source, so *TF2* has to be interesting, not just another variation of deathmatch or team-based games. We've got *DOD*, we've got *Half-Life Deathmatch*.... It has to add something, and there are lots of interesting approaches to that. The bulk of that energy is going to *Team Fortress 2*."⁸ >>



Gabe demos the first look at *Half-Life 2* at E³ 2003.

E³ show posters and the *Half-Life 2* booth at the ATI stand; the place for demos





The Hydra, shown in an early screenshot, but no longer in the game

“IT’LL BE OUT ON SEPTEMBER 30TH.”

Just before E³ 2003, Doug began his marketing push with gusto: “I was very conscious in 2003 of doing announcements and magazine cover sleeves in time for E³. Our big plan was we were going to reveal it in the mags that come out weeks before E³, show it at E³, and then ship it later that year. The response to the game at E³ was overwhelming. Winning all those accolades was great after keeping the thing in the closet for so long. Later on, I was at ECTS in London and saw a pretty similar reaction.” There was a problem, though. “We knew sometime in the late summer that we were going to miss September 30. It was hard because we didn’t know what to do. The technology needed more time to get more mature. We hadn’t finished.”⁹

Gabe continues: “We stepped up and said, ‘We’re going to be done September 30th,’ and then we started looking at bug counts and how quickly we were moving along with them, and we said internally, ‘OK, we’ve got X number of BSPs [maps], and we’re adding this amount of stuff this quickly to those BSPs, and they’re getting tested this fast...’ We looked at the schedule and said, ‘Oh, we’re not going to make September 30th.’” Gabe notes the main problem of mentioning a date and then having to delay it: “If we knew we weren’t going to make September 30th, then when were we going to ship? We didn’t want to tell people until we had a new date, because the last thing we wanted to say was, ‘We’re not making it now; we’re going to make it this other date,’ and then have that date be wrong, or say, ‘We’re not going to make September 30th and we can’t tell you when we’re going to make it.’ We got ourselves in a bit of a quandary over that.” A particular year, however, was never specified. Gabe chuckles “That’s true. ‘September 30th, 2004....’”¹⁰

“We had been so matter-of-fact over September 30th that people got keyed up over it. We had gotten the energy level up so high that we were afraid to say anything, because we didn’t know where to point people. So we made a mistake by waiting too long to say something else. There’s no doubt about that. We just didn’t know what to say. ‘We’re going to miss September 30th.’ ‘When’s it coming out?’ ‘Don’t know.’ That was not the story we wanted to have written, so until we had a better idea, we didn’t want to say anything. Finally, a week or two before September 30th, we came out we said, ‘Holiday—winter.’ We were just trying to give people an idea that we thought we could be able to achieve.”

“Then the nightmare happens within 10 days of that.”¹¹



Two early screens and shots taken from the 2003 E³ demo



caption?

THIS LOOKS BAD

It was early August 2003. Gabe's computer was acting up. Out-of-the-ordinary occurrences were occurring too frequently. Something wasn't right. It was the prelude to a disaster that nearly stopped the release of *Half-Life 2*. It almost wiped Valve out. The unthinkable was happening. Valve's Source Code was being hacked.

Gabe takes us through the initial stages of oddness, when bemusement changed to alarm: "There was some weirdness going on in our network, and on my machine in particular. Strange things that were unexplained were happening. You know after you've used computers for a long time? Then you see something odd that makes you go, 'What the hell is that? That doesn't make any sense,' or specifically 'Why did all my shares disappear and then reappear five minutes later? Huh? This is strange.' So we'd do the usual checks, like run a virus checker, and there were no viruses. You'd go to your process list and, 'No, I don't have any weird processes running.' And then the next day I'm aware that something else strange is going on."¹² The general background weirdness continued for a week or two, until the e-mail appeared. And it wasn't sent to an inbox.

"We saw an e-mail exchange between myself and Dave Riller that was posted by a group who called themselves 'My Gott' and instantly we knew there was no way they should have that e-mail; it was between two Valve employees as far as we knew. People asked, 'You didn't forward that to anyone, did you?'"¹³ Naturally, Gabe had no recollection of doing so, then the realization dawned:

"Suddenly it became obvious that somebody externally had access to our e-mail. At first, we thought that somehow access to my e-mail account had been compromised."¹⁴ Matters took a turn for the worse.

"At this point, we started to do things like taking hard drives out of people's machines and putting them into other operating systems..."¹⁵ The results were even more alarming.

"We started finding scary stuff, like partitions that were hidden under Windows that were visible under Linux, and that key loggers had been installed on our machines. At that point we knew that we had been compromised, but we didn't know the extent."¹⁶ >>

A key logger is “a program that runs in the background, recording all the keystrokes. Once keystrokes are logged, they are hidden in the machine for later retrieval, or shipped raw to the attacker. The attacker then peruses them carefully in the hopes of finding either passwords or other useful information that could be used to compromise the system or in a social engineering attack.”¹⁷

While Valve engineers rushed to determine exactly what had been compromised, Gabe had to continue his business and public relations commitments, only too aware that his company's future was in jeopardy.

Gabe continues: “Shortly after that, I was actually down at an ATI event at Alcatraz [the San Francisco island prison], and after we finished that event, the next day we found out that someone was in the process of releasing the Source Code to our game.”¹⁸

Doug Lombardi heard the news while in line at a Seattle club: “I’m standing there, waiting to go and see a band, two days back from a Tokyo game show. The mood was OK—we got over that whole September 30th problem and we’re shooting for the holidays now. All the trade shows are behind us; all we’ve got to do is finish the game and everything’s cool. Then Greg Coomer comes up to me and he’s got this look on his face like somebody died. And I say, ‘Hey Greg, what’s up?’ He says, ‘I don’t know how to tell you this, but we think our code was stolen, and I’m probably going to go back to work after the show tonight and figure out what happened.’

“By early that next morning, we had confirmed what had happened. We knew that all of it was gone and then some. The FBI was called, people were searched, our PCs started getting hauled off to federal authorities, and we operate with all our wires pulled from the walls for a few weeks.”

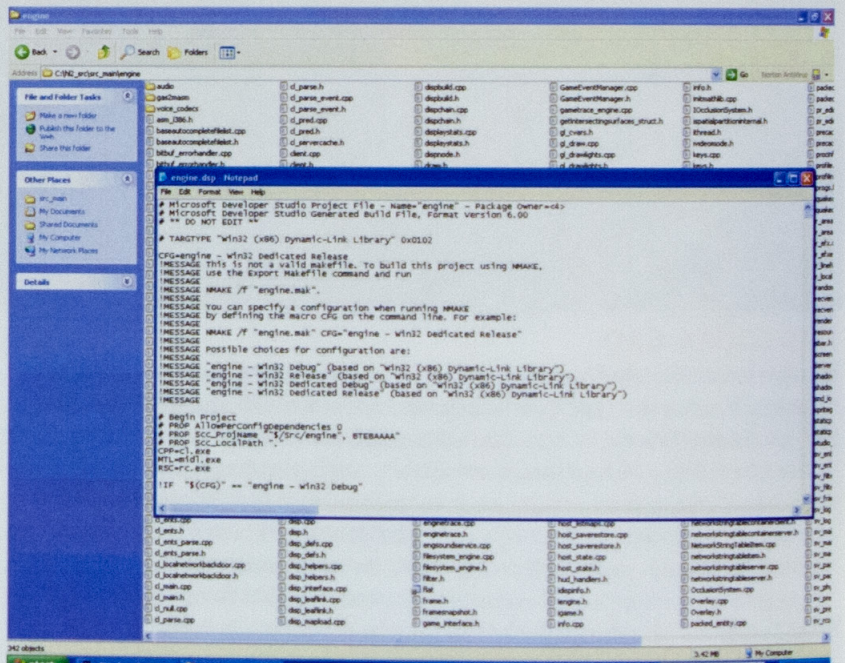
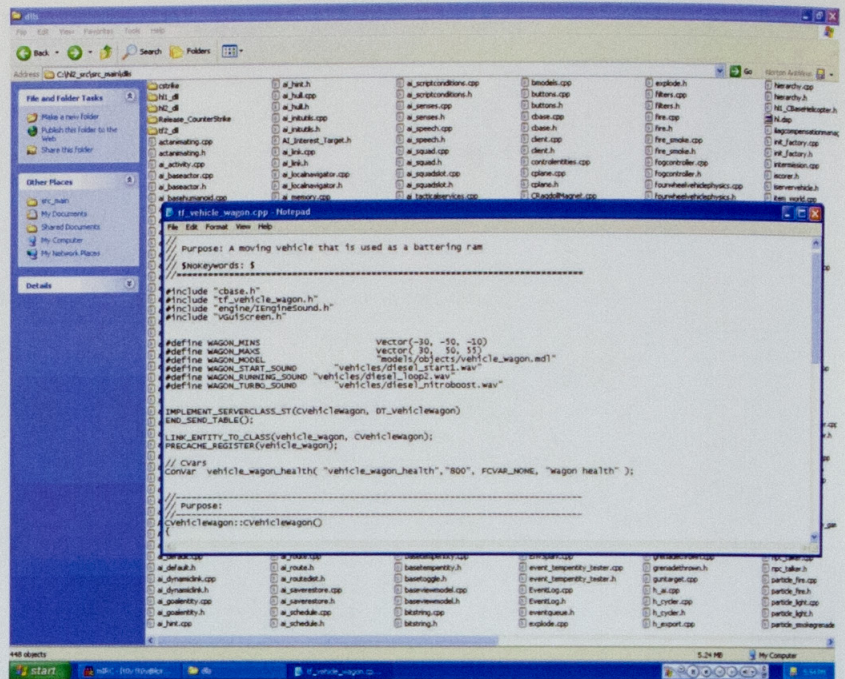
Jess remembers three little words: “They stick out in my mind from when that happened. People had started seeing Source show up on the Internet and you know, Source did that all the time. It was a joke. But we saw the screenshot, and everybody gathered around someone’s computer and said, ‘Oh, my god, that’s real.’ Tim Holt, who’s one of our contractors, sent the screen to all Valve employees saying, ‘Is this legit? Look at this!’”

Erik Johnson emailed back with three words: ‘This looks bad.’”¹⁹

The worst calamity that could happen during the development of a game was playing out in front of the team in sickening slow motion.

Gabe: “It’s pretty high up there; I mean, the only worse things would be if half the developers on an airplane are killed or if Valve’s building burns down, so, yeah, it’s pretty bad.”²⁰

The effects of the attack instantly hit the team emotionally.

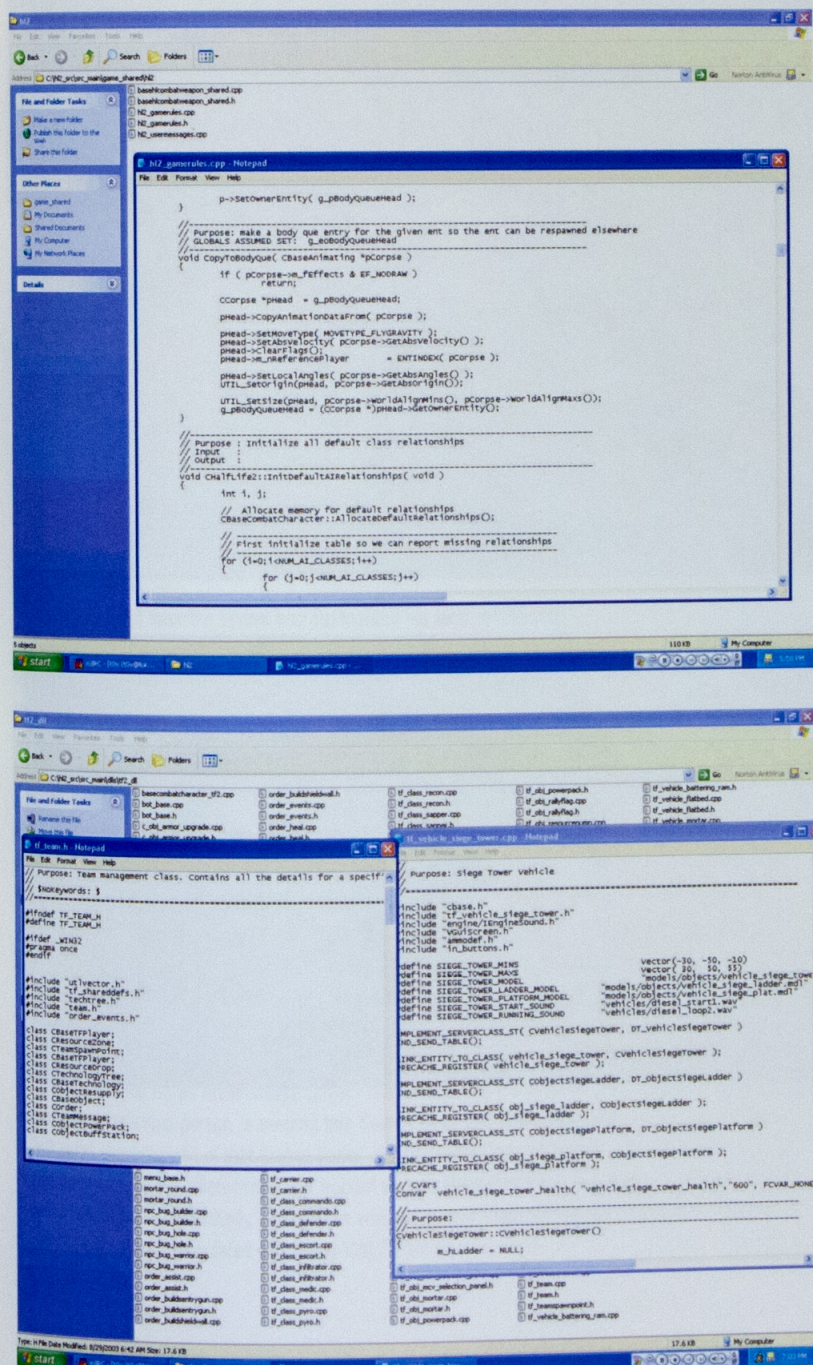


Desktop screengrabs, taken at the moment the Source code leaked, confirming the theft

Gabe continues: "It was really hard on the team because, for a lot of creative people who have to deliver that creativity to other people, there's a huge amount of fear of 'Will people like it?' and 'I've spent so much of my life building this thing; are people going to like it?' There's so much riding on this, so we try to be careful about how we communicate about it."²¹ Then came the fellatio pictures. Gabe discovered that "once people had the Source Code to the game, they started posting stuff. They took the models and were posing them in obscene ways, like Alyx performing fellatio on Kleiner and stuff like that."

"We'd gone from being this incredibly cool game to being the butt of silly teenage jokes overnight."²² Confusion reigned. Gabe: "People also didn't know what this meant. Did this mean that we'd lost a big chunk of our sales? What did this mean from a business perspective? How much had our business been harmed? It wasn't just that we had been harmed, but we didn't know how much it mattered. A lot of people in the company were worried that this meant that we weren't going to ship *Half-Life 2*. They didn't know what it meant to have our Source Code released, and how much time this was going to add to the project."²³ The team was in disarray. Gabe: "We had a bunch of people already working incredibly hard, stressed out, and have spouses at home who are wondering why they're working 80 hours a week or more, and then to have something like this happen—it's tremendously demoralizing to people."²⁴ A sense of numbness pervaded the office. Gabe: "It was probably about three months before people stopped being shocked and dismayed about what had happened. It helped a lot that later on some of the people had been arrested who were involved. It made it feel like at least there was some sense of closure, that these random events have consequences."²⁵

Doug: "It was a nightmare in all aspects, because just for us, personally, to have the biggest career investment of your life ripped off before it was done is utterly demoralizing. There's also immediate confusion because you have all this hype, and then you say that you're a little bit out, and then the delay happens, and everyone starts saying, 'You're late because of the delay,' and it's a conspiracy theory, and all this other stuff starts happening. You start to pull your hair out, roll your eyes and say, 'We need to chill out for a while. It had an impact on the game, but the Source Code theft is in no way the reason we missed September 30th. To be honest with you, we haven't calculated the impact yet.'"²⁶ >>



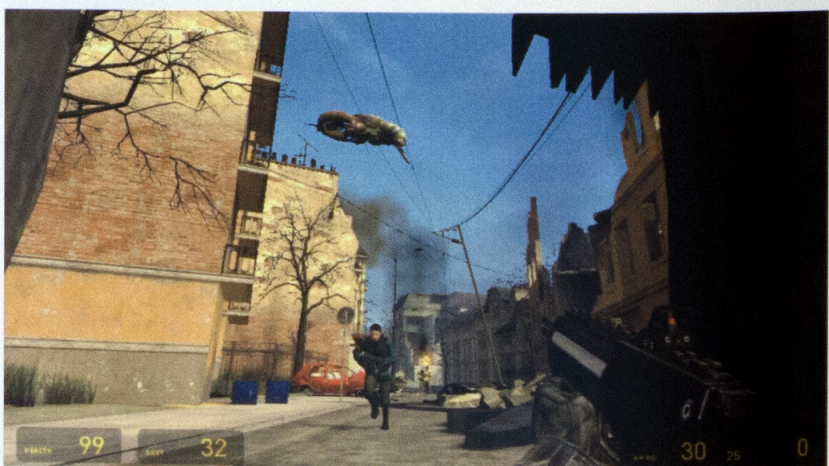
Doug: "After the code theft, we just retreated, we were like, 'F**k this, man, it's time to take a break.' The effects of the theft hit some people the day that we found out and didn't hit some people until December. I literally had a conversation with somebody here the week after Christmas break, and they were going through their Source Code theft depression. That was months afterward. I mean, it went on until December or January, until people really got over that. Then we started getting back into development and getting into rockin' stuff. We hit Alpha and it's time to bring the mags back in, and it's time to get the next E³ demo together, and everybody was freaked out about our Source Code being on the net all this time; our competitors had time to study a very long E³ demo last year. *Far Cry's* coming out, *Pain Killer's* coming out, *Doom 3's* gotta be ready to go now, *Unreal Engine 3* or whatever is game showing, *S.T.A.L.K.E.R.* comes out of nowhere.... I mean all those things go through your head."²⁷ Valve fought back, with the help of the community. Doug: "We had 4,000 pieces of e-mail come in the first couple of weeks with people saying, 'I heard this—I think this person knows something, etc., etc.' We handed all that over to the FBI. Then the FBI was able to work in conjunction with the German authorities to finally bring these guys in. Now they're going to go to trial."²⁸

Jess: "And in an ironic twist leading up to these last few weeks, I had actually spoken to one of the ringleaders on the phone. He had called us. It wasn't until he had been busted over the Sasser worm; that was another reason for his arrest."²⁹ For legal reasons, Jess can't talk about what was said.

Doug: "You've got these people who are super-super intelligent. Because, I mean, coming up with the program, getting into our network.... Obviously, no network is absolutely secure. But I mean, we're pretty buttoned down. To them, we're sitting there waving, out on the net, with half our Source Code sitting out on the wire. These guys are pretty bright guys, and unfortunately they just aren't sound. Once you get people who are really, really bright who aren't sound, they do weird shit. One good thing that came out of this was we got even more impressed and closer to our community because they were the ones who led us to the guys who did it. The other thing is I think the team is stronger and tighter as a result. Two things were going to happen after the theft: We were going to give up and quit and have this mad exodus, and the game probably would have ended up in the toilet, or everybody was going to rally around."³⁰ The latter ended up happening.

Jess: "In a very sick and twisted way, that's sort of the ultimate compliment. People will go to those lengths to get that game."³¹

The gentleman eventually caught and currently awaiting trial is part of a German hacker collective and was partly responsible for the Sasser, as well as the GoBot and FatBot virus worms. Gabe discovered that "essentially, he built productivity tools for hackers."³²





Don't call it hacking though, says Warren Spector: "Call it what it was. Theft. Stealing. Criminal. I was as horrified by it as anyone. Some people just don't understand how much time, effort, heart, and soul go into the making of a game. I hope the folks who did it get sent up river for a long, long time..."³³

At Epic Games, Cliff Bleszinski was one of the many other developers quickly checking his security: "As a developer, I was mortified. It's the same thing as having someone on your block burgled; you become paranoid about your own vulnerability and everyone battens down the hatches."³⁴

Marc Laidlaw couldn't understand the reason why anyone interested in the game would want to see it in that unfinished state. "I felt about the stolen build the way I'd feel about someone stealing an early draft of one of my stories. Until they're finished to my satisfaction, I don't see why anyone would care to read them. I'm a huge David Lynch fan. Would I care to look at a bunch of unedited dailies from his work in progress? No. I want to see the finished movie. I don't understand the mentality behind the theft of unfinished creative work."³⁵

Gabe found out later the hacker had customized his tools for the attack.

"He did some custom stuff to get into our offices, but he also just writes lots of tools code for the hacker community and the spam community. Essentially they're creating all of these zombie PCs, and then using them as spam replication ports.... It's interesting because I've ended up talking to a fair number of hackers as a result of the incursion, and a lot of them are all disgruntled that the hacking world is becoming so commercialized, because now they finally have 'value' that they can create. They get these armies of hundreds of thousands of zombie PCs that are running hidden processes on hidden partitions and they use them as spam redistribution points, and all of a sudden, some of them are making tons of money, and others are decrying the commercialization of acts of random hacking."³⁶

"It's hard for me to have too much sympathy...."³⁷

Looking back on the attacks, Gabe was asked if there were any benefits from the attack. "No."³⁸ In fact, after Valve realized how much of Source was affected, work began on reworking the code:

"There was work we had to do that we wouldn't have had to do otherwise." Gabe gives an example: "Some of our code had been based off of obfuscation. It's too hard to figure out what it's doing, and now anybody could look at the Source Code and tell exactly what it's doing, so we had to go and re-do that. Also, whenever you do an open-source project like Linux, there's a process you follow to say, 'OK, what happens if a malicious person is reading this Source Code and looking for some way in which they can exploit some characteristic of that Source Code?' If your Source Code isn't public, you still want to be aware of that, but there's a big difference in how worried you are about that when your Source Code isn't out there versus when it is, so essentially, against our will, we turned [Source] into an open-source project with some of the overhead associated with doing that."³⁹ >>

THE FINAL PUSH

Now that *Half-Life 2* development has wrapped, Valve's immediate plans (after the crowbar hits the second headcrab piñata) are already set. Gabe reckons the team will "keep doing more of this right away. We've made this huge investment to reach this point. We're getting good at building this stuff and we're not going to set off on another five-year quest. There's so much that we're not taking advantage of already—stuff we already have. Every single piece of the system has so much more in it than what we're showing to people with *Half-Life 2*, in terms of cool gameplay, that we've got a lot of work to do just to take advantage of what we've already built. The great thing is, we're far more productive at doing that now than we were six months ago."⁴⁰

HALF-LIFE SOURCE: CLEARING UP CONFUSION

Packaged in with *Half-Life 2* is a version of *Half-Life* running on the Source engine. Jess and Doug clear up any confusion about this revisit to Black Mesa.

Jess: "I think people's perceptions were a little bit off as far as *Half-Life Source*."

Doug: "They're all wrong about the magic button."

Jess: "It really was more of a test case to see what mod developers who wanted to bring their existing mods to Source would have to do to make that happen."

Doug: "It's pretty much a straightforward port from the original, not as overhauled as *Counter-Strike Source* in terms of the art and everything. However, having said that, you know, in terms of shadows and physics, certain things come for free, so the gameplay is more dynamic. The frame rate is insanely faster! But it is a nostalgic romp. It's not an all-new game."⁴¹

Combat in the Nova Prospect prison;
there have never been so many ways to die.





Overall, the team blazed a new trail into many new areas of game design, as Bill Van Buren explains: "With a lot of the projects here we created a whole process that pretty much didn't exist before we tackled it. It's like controlling a medium for an artist—switching from a pencil, to marker, to oil, so we just had to work on the new medium—it is really difficult, the 3D engine. We got good at it, so we can easily do anything later on; we can recreate any city at this point and with any level of stylization." However, this does mean mod makers are going to need to play with the tools for a while. Viktor: "It's going to be a challenge, but I think all the tools will be there for them and they'll have our libraries to start with. They'll have some textures, they'll have our buildings that we built, a lot of our props, so I think that is a good starting point."⁴²

Finally, Valve's biggest mistake; the blockage of the idea flow due to technological meanderings and an uncertain game engine has been removed. Gabe is happy that the game is now user-friendly: "It's a lot more productive to be inventive now than it was even six months ago [January 2004]. Six months ago, you were constantly thinking, 'Well, this works but I haven't done this before, and I need to go bug Gary McTaggart about how this works.' Now everybody says, 'I've done this a couple of times and now I can invent stuff on top of it, and I already know how to use it.' There's a big difference in your experience before and after shipping something. It's more fun now, you're less timid, you're not fighting the tools, you're doing less code debugging, and instead you're focusing more on gameplay and player experience."⁴³

Prepare for more *Half-Life 2* in the coming months.

"Not just expansion packs either. We'll be regularly providing updates to our customers, some of which will get wrapped up in an expansion pack, but it's our expectation that we're going to generate more of the *Half-Life 2* experience for people right away, in addition to working on *TF2*."⁴⁴ >>



The classic *HL2* screenshot, showing a Strider bearing down on rebel fighters

REGRETS? I'VE HAD A FEW.

Valve knows when it has made a significant misstep, and during *Half-Life 2* there were some doozies. To recap, Gabe remains clear on what, exactly, were Valve's shortfalls. "We were trying to solve production problems when we were in pre-production—that made everything five times harder than it should of been; level design, game design, all of those pieces... we tried to solve them at the same time we were making core decisions about the technology implementation, and we really should have had production people working on something else rather than having them try to be producing *Half-Life 2*. You can't back away from the problems. You have to fight them and beat them. The problem with that is, it sometimes makes it harder to realize that you're making a mistake, because... 'Is it a mistake or are we just not trying hard enough yet?' At the time you think, 'OK, maybe we just need to manage this more carefully—maybe we just need to control the people who are trying to build these pieces—maybe that's the solution.'"⁴⁵

Tightening management structure or resolving problems faster can cramp creativity. Gabe cites fiscal considerations, too: "Mistakes like these ended up wasting a bunch of money, which isn't so bad." What was worse was that "we made a bunch of creative people very frustrated for a long time. They had all this pressure to produce, but fundamentally they didn't have the tools they needed to be successful at doing that. They could do five different things, none of which would turn out to be in the game. That is brutally painful to people who really care about what they're doing." Torturing the fans is another blunder Gabe is fully aware of. "It's very frustrating to anger our fans so much around schedules. I still haven't figured out what we're going to do about that, because on any project, there's manpower, quality, functionality, and schedule. We're always going to be willing to take longer to build the game than we want, but there's got to be a better way for us to do that than to go through the whole September 30th fiasco again."⁴⁶

SIX YEARS ON: *HALF-LIFE 2* CONCLUSIONS

At least the team at Valve has another high-profile, first-person shooter to play, and it is strangely fitting that *Doom 3* is the follow-up to the game that started Valve as a company. "I'm excited about *Doom 3* because it gives me a game I get to play. *Doom 3* and *Half-Life 2* are really, really different games." This *Half-Life* isn't going up against a dreadlocked bodybuilder or a slow-moving raptor, but a UAC Space Marine entering the gates of Hell on Mars. Gabe and the team can't wait. "Fundamentally, good games actually help other good games, and nothing is more likely to make somebody buy a game than having had a good game experience. Now, admittedly, if you ship on the same day, you're probably going to be competing for dollars, but a lot of times, having a great game in a genre means that lots of other people are going to be able to sell their games in that genre as well. I'm sure the press—it's an easy story to write—will spend a lot of time contrasting the various first-person games, but I think that what each company really benefits the most from is not focusing on their competition, but focusing on what they're going to do to make their game worth people's time and money."⁴⁷

The six-year development is over. *Half-Life 2* is complete. Barrels are exploding. Fast zombies are leaping from medieval rooftops into Gordon's shotgun. Ant lions are piercing Combine soldier flesh. The Citadel is finally being assaulted. Industry colleagues can't wait to play: "From what I've seen," says Warren Spector, "it looks as if Valve is upping the ante once again, making it harder for the rest of us to compete! Their commitment to quality is incredible. And it's not just graphical quality—lots of people can offer players pretty pictures. *Half-Life 2* looks like it's going to offer new kinds of gameplay, doing things with physics, in particular, that most of us haven't even thought about. And the characters.... Man, I've been saying for years that better virtual actors would be the Next Big Thing in gaming, and it looks like Valve's going to be ahead of us on that front, too. It wouldn't surprise me if *Half-Life 2* changed the face of shooters the way *Half-Life* did when it came out."⁴⁸

How does Gabe feel *Half-Life 2* has turned out? "*Half-Life 1* gave us this great legacy to live up to. Have we done that, have we lived up to what everybody wanted out of the sequel to that game? Right now, yeah, I think we have. I think the game is great. What makes me happy is when we sit people down who have really high expectations for the game—who are hardcore—who are going to be pretty unforgiving, and they play it and afterward they say, 'Wow, that's just great. That exceeds my expectations.' That's what we're looking for from these guys when they play it. Does it exceed their expectations? Because if it does, then I think we're in really good shape. And that, really, is what we were trying to do."⁴⁹

Does it exceed your expectations? Has *Half-Life 2* raised the bar? ■







Angry

Epilogue: The Half Life of *Half-Life*

.17

“Quote text of opening quote or body text. I’m not sure what will go here, but it will look like this. Quote text of opening quote or body text. I’m not sure what will go here, but it will look like this. Quote text of opening quote or body text. I’m not sure what will go here, but it will look like this. Quote text of opening quote or body text. I’m not sure what will go here.”

► PART 1: DARK MATTER SHORT STORIES

The following are short stories written by Marc Laidlaw. He distributed them to the team at the beginning of the project so the team could understand better the feel of the game.

IN THE ANT LION'S DEN

The dust cloud swirled away, erasing Father Grigori's footprints. The ruinous shadows of Ravenholm swallowed up any further trace of the priest.

Gordon turned from the field of scurry-mines and loped toward a ridge of rocks where some previous traveler had piled a cairn of stones on the ridge and thrust a stake with a fluttering rag in the midst of them as an additional marker.

A trail, Father Grigori had said. There is a trail of sorts to Eli's camp. But few survived the journey. Which is why so many chose to remain here with me... despite the promise of greater security that Eli offered. There are things out there. I've seen them at the edge of town. They don't come close. For which I thank God.

The view from the ridge was one of stillness and desolation. The landscape was scattered with tangled metal, as if the contents of an enormous junkyard had been strewn here from a great height. There would be cover from air patrols, but the shadows underneath the huge scraps of metal held their own promise of horror.

Far off he heard a strange keening sound he had not heard since Black Mesa, and thought he saw a distant yellow flash.

An isolated houndeye was no great concern.

But if he were to run into a pack...

He raised his binoculars and scanned the dark valley below. Another small heaped shape marked the next trail marker. Before leaving, he glanced down at the cairn beside him. Closer study showed that one of the rocks was scratched with a faint weathered symbol—the same lambda sign that had marked secret caches in the sewers of City 17. Seeing a faint glimmer from within the pile, he loosened one of the rocks and uncovered a small medical kit. He didn't need it yet, since Father Grigori had patched his wounds, but he was thankful to have it.

Gordon scrambled down the slope and leapt from an overhang that brought him down hard on the earth of the sprawling junkyard. Some rocks, unsettled by his descent, continued rolling past him and bounced across the hardpan, banging against scrap metal, stirring up noises he wished had not been stirred. More worrying was the soft hissing that came like an echo, or an answer.

What was it?

As he watched, the last of the tumbling stones rolled across the rusted curve of an old aircraft fuselage and settled on the sand. But it did not stop there. It continued sinking until it vanished. The sandy hissing continued for a moment after that. Then all fell still again.

Gordon studied his surroundings with a more critical eye. The stone cairn up ahead looked more like an island now, set with great deliberation on solid ground. But around it, between the metal scraps, the earth looked as if it had been freshly turned, or pushed up from below. What exactly could he expect if he set foot on the plentiful sandy patches?

It began to remind him uneasily of the fine sand around the edge of an ant lion's funnel... but without the clear border of the ant lion's trap, that would have made it so easy for him to avoid.

A sand-blasted cola bottle lay half-buried, choked with dried mud, on the ground near his feet. He picked it up and gingerly lobbed it onto a patch of sand just beyond where the rock had vanished.

Within seconds, the bottle too was gone, leaving only a puff of dust that quickly settled. Gordon crept across the fuselage fragment as if it were a raft bearing him across a sea of dust. The silt was a fine powder, almost a liquid. Something had converted ordinary soil into this. Some Combine process? Where was the sense in that? Perhaps a creature. Yes. A creature like an earthworm. Swallowing up the earth and transforming it into this silty medium, so much easier to travel through for things that might swim beneath the soil.

Earthworms were harmless, he told himself. And so was this creature, most likely. But the quicksand itself was another matter. He had no idea how deep it might be; and scrambling out of it, once caught, might be impossible. His HEV suit was hardly meant to help him swim through sand.

So...

He must study the terrain, looking for solid earth, looking for stepping stones. Obviously the sheets of metal scrap rested on rock, or they would have sunk beneath by now. But the bare ground might be riddled with this new form of quicksand. And who was to say that the path to the stone cairn, solid a week or a month ago, might not now be completely rotten?

The safest route was not necessarily the most obvious, or the most direct.

Gordon edged to a corner of the metal scrap, and then stepped across a narrow gap to the next large piece. It creaked underfoot, the loudest sound in all that night. He wondered how the houndeyes fared in the quicksand.

There was a rocky outcrop just ahead, but he had a feeling he couldn't make it in one jump. He searched around his feet until he found an unlabeled tin can lodged in a metal crease. He tossed it midway between the rock and his current position. It landed with a clank and didn't move. Gordon jumped down square onto the solid spot and picked up the can. With a second step, he bridged the gap to the rock.

He was most of the way to the stone cairn now. He skimmed the can across the ground. It hit the cairn and bounced back, settling several feet from the stones. He stepped down and walked cautiously, with slow shuffling steps, until he could retrieve the can. Then he walked the rest of the way to the cairn.

Hisssssssssss...

Gordon looked around wildly, feeling a tremor of the earth underfoot.

Head for the cairn, he thought. That was solid.

Even as he thought it, the cairn itself began to crumble.

Its separate stones scattered and sank into the softening soil.

The last thing he saw was a bit of rag fluttering on the broken stick that had topped the cairn; and then that was gone.

Gordon lobbed the can across the spot where the cairn had stood, and was relieved to hear it hit the ground with a clank and then roll several yards before banging into a span of sheet metal. He stepped back, measuring his steps for a leap across the soft spot, but in the instant before his leap, the ground exploded into dust and rubble.

Something huge and glossy erupted from the eroded earth and sprang into Gordon's path. This must be the ant lion—denizen of this disturbed earth. Despite its size, it touched the ground quite lightly, even delicately, on six wicked legs. It looked like an enormous insect, striped in virulent colors like a wasp, with its glossy elytra flaring up defensively. Its hind wings formed a crystal blur as it leapt with scissoring mandibles at Gordon's throat.

The shotgun seemed still charmed by the blessings of Father Grigori. One shot and the ant lion tumbled backward like a wad of paper, landing in a clattering chitinous pile.

Gordon judged where it had landed, and leapt to that spot. He heard the silty hissing, felt his foot begin to slide, and took another step. The sighing was louder now, even though the earth felt solid underfoot. He bounded forward and grabbed onto the edge of a rocky shelf, pulling himself clear of the quicksand.

Turning, he saw the earth behind him seething, churning, as another ant lion surged out, and another, and another.

They paused, regrouping around the ragged body of the first, and then tilted their shiny alien heads in his direction. With a shriek, they spread their wings and flew above him, descending with their sharp legs stabbing. He shot down one, then turned as the other two hit the rocks. Gordon rushed for higher ground, still having had no chance to get a look at the path ahead of him. The ridge loomed up darker than the night sky, offering the advantage of height. But as he neared the peak, a blur of black silhouettes sprang up and settled on the crest. Others had somehow been summoned to cut him off. As they fluttered down, he fired again and again. They clattered dead around him. With no time to reload the shotgun, he pulled out the machine gun and peppered them with bullets.

The things were plentiful, but their exoskeletons were brittle. They crashed down around him, screaming with a sound like rending metal. As he reached the ridge, he half expected to see clouds of the creatures swarming at him, winged legions bent on devouring everything in their path.

Mercifully there was a field of hard black rock below him. Ant lions were scurrying over it, but at least they could not surprise him here by coming up from underfoot. He traversed the ridgeline a short distance, firing shots at the pursuing creatures; then he started down. Below was what looked like the hull of an overturned ship, a long metal shell jutting out over the sand, where he would be safe from things that burrowed through the earth. The ant lions that paced him were met by short bursts of gunfire. As if reconsidering their strategy, a cluster of ant lions stopped and waited just ahead of him, at a narrow strip of earth that separated the black rock from the ship's hull. Crossing it could be difficult.

He took out one of the grenades Father Grigory had given him, pulled the pin, and tossed it. The grenade hit the shell of an ant lion and bounced off, arcing down to land in the sand. Almost instantly, it was swallowed up, which confirmed what he had feared about the soil down there.

An instant later, a geyser of sand, silt, fire and ant lion parts roared up from the buried grenade. The gathering of ant lions scattered in a chattering cloud of wings and jaws and stabbing legs. Gordon rushed forward through their confusion, sprang across the narrow gap of quicksand, and continued full-speed onto the metal hull that rang hollow underfoot. He could hear them settling behind him, could hear their skittering steps as they followed. He ran without looking back, reloading as he rushed for the far end of the hull.

And there he stopped, gazing down.

Below him was a different creature. If the ant lions had seemed large to him, at half his height, then this thing was gargantuan—at least twice his height, with a long, powerful body the size of a car. Its head was shielded in chitin that gleamed like steel, and he sensed this one would not shatter or split when he poked it with bullets. It stood firm in the midst of a roiling crowd of the lesser ant lions, dwarfing them, and they seemed to treat it with fear and respect. When one came too near, it dipped its head and flicked it aside as if it were weightless.

Gordon stepped back from the edge, wondering if it had seen him. The ant lion leader cocked its head as if listening, took a few surprisingly delicate steps forward, and then seemed to sniff the air. He could actually *hear* it snuffling.

The moment when it caught his scent was unmistakable. Its whole body tensed, its head thrust in his direction, and all the smaller ant lions around it seemed to surge on its signal.

The second of his grenades was already in his hand. It landed at the ant lion guardian's feet. While the lesser creatures shrank back, as if they had learned their lesson from the deaths of their fellows, the guardian treated the grenade with disdain. It lowered its heavily armored head and nudged the grenade like a horse nosing at a fallen apple. When the grenade went off, flinging the nearest ant lion bodies everywhere, the large one merely took a few steps back and shook its head as if flinging off a mild annoyance.

Gordon fell back, looking around wildly in case he had missed anything—any opportunity to take a different path. He had nearly forgotten the pursuing ant lions, but these were easily dropped. They tumbled and slid down the sides of the hull, vanishing into the shadows. If he followed after them, he would no doubt find himself claimed by the silt. If he went backward—well, what was the point of that? And forward...forward was madness.

Then, in the dim light, he saw a faintly luminous symbol shining on one panel: a lambda, its paint fading. The ship's hull had been sawn through on all sides of the symbol, forming a trap door. He was not the first to take this path, after all. He slid his fingers under one edge of the hatch and pried it up with rusted screechings. It was dark underneath, but reassuringly silent. He slipped through and let the hatch bang shut above him as he fell.

The flashlight illuminated a wide empty space with a curved, ribbed ceiling like the inner vault of a corroded cathedral. The bilge floor, once its ceiling, tilted down to where another hole had been cut away. He directed the flashlight beam into the room below, saw tumbled furniture, and leapt through. There was an old mattress pulled into one corner of the room, and a few empty cans that had once held food. The wall was scorched by smoke, as if someone had cooked below the hole through which he had just descended, using it as a chimney.

He stepped over the high threshold of the inverted door, coming out into an accessway that ran the length of the ship. Forward, it all ended in closed-off rooms, jumbled debris. Aft, the hallway carried him deeper than he would have thought possible. He had thought he was only running on the hull of a ship—as if the other shell were all that remained. But now he saw that most of the ship was down here, still intact. However it had come here, it had been settling in the silt for some time, and most of it was underground now. At least, being metal, it was impervious to ant lions. Presumably. He reminded himself, as he stepped over metal-sheathed coaxial cables and cage-like light housings, that it was too early to draw conclusions about their behavior.

He wondered about the lambda—whether it had simply signaled a place to rest, a cache of weapons

or supplies, or whether it had been another waypoint on the road to Eli's camp. In which case, he supposed he was now heading in the wrong direction. At worst, he could scavenge for supplies and then retrace his steps. Maybe there was a way forward after all. He would know soon enough.

He came to an inverted stairway. For his purposes, it was simply a drop into darkness, and one from which he wouldn't be returning. He listened, and again heard nothing to suggest a threat. If anything, it was quieter down here, even his footsteps sounding more muffled, with the ship encased in earth. He took the leap and found himself in a section of corridor that had been ruptured from outside. A faint susurrus of moving air suggested open spaces somewhere near or far. He aimed his light through the rupture and saw stone, smoothed as if polished, gleaming with nodules of what looked like heat-fused silicates. It was a tunnel.

Gordon crept through the opening. The tunnel ran steeply past the rupture. Listening with all his concentration, and moving as quietly as he could, he sidled toward the rear of the ship. After several yards, the passage angled up so sharply that he could advance no farther without simply slipping backward. In the other direction, it curved away from the ship in a gradual descent. If he had any doubt that this was the way to proceed, he soon came upon a chalk lambda. Gordon thought of Jules Verne's Arne Saknussen leading his followers toward the Earth's core with similar markings.

Only mildly reassured, he began his own descent.

The passage was oddly regular, giving him the impression it had been machined or at least hewn by some extremely consistent creature. He had to be careful not to let its monotony lull him into lethargy...his tendency, especially given his fatigue level, was to fall into a kind of trance. But the sameness of the journey gave way to an adrenaline jolt, and new worries to go with it, when he came to the first intersection.

It was not the matter of choosing a path that worried him. It was the fact that suddenly he heard the soft, steady skittering of ant lions somewhere near; and he realized that for whatever reason, the tunnel he'd been following was disused, but others were not. Worse, the lambda marking showed up at the mouth of one of the divergent passages, and the insect sounds grew louder as he proceeded in that direction.

He expected at any moment to find himself on a well-trafficked ant lion highway. The sound of chitin on stone grew louder and louder; he could hear the creatures' constant soft chittering.

Finally he came out on a ledge above a wider passage. There was a steady movement of ant lions back and forth, several feet below him. None paid him the least bit of mind. Directly across from him was another tunnel opening. And there, sure enough, just inside the entrance, was another lambda mark.

Gordon sank back to watch the ant lions come and go. They didn't seem to notice his light, so he grew a bit bolder with it.

There were gaps in the procession. Sometimes several seconds went by with no ant lions in sight. But always another

string of them would come along. They headed in either direction, sometimes bunching up and touching each other with their antennae and claws, before proceeding. And then there would be another quiet interval. He could hear their wings fluttering as they took short flight in the unseen dark.

He crouched and waited. The traffic surged, thinned, then surged again. He watched an ant lion scuttle out of the reach of his light to the left. Then, just as it vanished, another appeared from the same spot. It hurried along below him, limping slightly, taking its time. He wondered if it was a creature he had injured at the surface. It was taking forever, and in the meantime, he could hear the scurrying of others approaching.

The dawdler finally vanished at the edges of his vision. Gordon leapt down and scrambled for the far ledge, finding the surface slicker than expected. He couldn't get traction. He fell back and tried again, again.

He looked at the ledge he'd abandoned. It was too high to get back up. Well. He looked left. It was silent that way. He ran hurriedly, casting the light ahead of him, until he came to a steep section of tunnel. This must be where he'd heard them taking short flights. Turning, he rushed back the other way with his shotgun ready now, steeling himself for the inevitable confrontation. He hurried past the unreachable tunnel mouths, including the one with the lambda mark. So much for Arne Saknussen.

Miraculously, while he could hear ant lions somewhere up ahead, for the moment they had stopped crawling up this passage. But their sounds were getting louder as he hurried on. Surely at any moment he'd see their hard eyes glittering in his beam.

He came out suddenly in a wide section of tunnel...there was no telling its extent. He could see the gleam of ant lions straight ahead of him, however. Ducking sideways, he found himself in a tumbled pile of broken rock. The sound of the creatures was incredible here, filling the air, as if he were in a crowded arena. He crouched and caught his breath, content to think that for the moment he was hidden and off the main path. As he knelt there, he noticed a small movement on the ground just ahead. A fat little grub lay there...well, it wasn't exactly little for a grub, unless you considered the size of the ant lion it would presumably grow into. It was roughly the size and shape of a sourdough loaf, and it was coming his way.

Despite a general fondness for insects in all their forms, Gordon suppressed the urge to kick the thing in revulsion. There was no telling how it might react if harmed; and the thought had just occurred to him, given the presence of the larva, that he might be in something similar to a nest. Best to be on good behavior.

The thing wriggled over to him, seeming to sense him, however dimly.

It lifted its stubby head and waved it in his direction, like a caterpillar straining to reach the next leaf.

Gordon scrambled backward, standing up.

He stumbled over a low lip of rock, and fell back into another restricted tunnel passage. His light crossed the familiar lambda chalk mark, just at the tunnel's mouth. So he had found his way back to the passage after all, and an easy exit from this infernal nest.

He scrambled into the passage, first going on all fours, then running over hunched so as not to bang his head on the low ceiling. He was making progress now—good progress. The passage seemed to be deserted, like the one he had followed initially. He had to hold back from running, wanting to conserve his strength, because one never knew what hazard lay ahead.

And with that thought, the next hazard dutifully appeared.

The passage ended on a high ledge, crossing a perpendicular tunnel that ran past at a somewhat lower level. He was hit by déjà vu. Ant lions scurried along beneath him, and he heard the frenzied sound of wings as they took flight briefly somewhere to his right. Everything was turned around, but it was all the same.

He looked up and saw the chalk mark on the stones just above his head.

So this was none other than the ledge he had failed to scale the first time. He was back at the verge of the passage that would carry him down to the nest, and no closer to finding his way out than he had been before.

The worst thought was the realization that he would have to return to the nest, and find his way around or through it.

Resigned to this course, he retraced his steps. When he arrived at the entrance to the vast black nest, the little grub was still waiting for him where he had left it several minutes ago.

It raised its blunt blind head and let out a little chirrup, and even began to glow, as if cheerfully welcoming him back.

Gordon couldn't restrain himself. He'd suffered so many indignities.

To be...mocked...by this blind ugly inhuman thing.

He raised his foot and stepped down on the grub, putting the full weight of his frustration into it.

It squealed as it burst.

In that instant, the entire seething, chittering, chaotic business of the nest roared to a louder pitch of frenzy.

And then...went utterly silent.

NOW ARRIVING: CITY 17

Phosphores flare across his eyelids. Hisssss of decompression. And then a sudden chill.

Chill...at least it is a sensation. He has felt nothing for...how long now? Has he been sleeping? Even in sleep one imagines sensations: sights, sounds, tastes. But for Gordon Freeman, for so long, there has been nothing. Not even sleep. Something deeper. Darker. Something so numbing that this brush of icelike vapor feels like the warmth of dawn.

Brighter now. Something moving out there. Someone. More sensations joining in the mix. Pain flooding back into his limbs. He would rub his hands, rub the feeling back into them, but he cannot be sure of their location. It's not completely reassuring to know he has a body into which this pain can creep. Less reassuring is the voice that crawls inside him, stealthy as the hiss of icy steam:

"Rise and shine, Gordon Freeman. I do believe I've kept you waiting long enough."

That voice...and somewhere, a blurred shape emerging from the darkness. A withered face, narrow eyes, a visage that seems simultaneously paralyzed and possessed by erratic tics that hint at extreme senility or neural damage. It floats in the vapor, blurred at the edges, seeming insubstantial. He has heard the voice somewhere before...somewhen....

"Ten years, Mr. Freeman. It won't seem that way to you, of course. But 10 years is a long time. Long enough for humanity to swallow its pride and begin to accept its common fate. Long enough for your fellow man to develop callouses against the master's collar. Long enough for the first scars of whiplash to begin to heal. Long enough to forget how things used to be."

There was a ticking sound now, a low drumming clatter. The voice was beginning to fade, the face receding. Sensation solidified into substance.

"But you won't have forgotten, Mr. Freeman. You still remember how the air used to taste. You remember how freedom felt. You remember...the sky."

And it was gone. A hard surface beneath him. The clattering sound sprang loud in his ears and he knew it as the sound of a train jamming over tracks.

"Hey, buddy...."

He opened his eyes. A face—not the strangely familiar one seen through mist, but a stranger bending over him. He sat bolt upright, startling the other man, his fellow passenger. Swinging around in his seat, casting wildly around him. It was a train car, and for a moment it overlapped in his memory with another train, in another time. Had any time passed? How had he come here?

"Mister, you can't ride around like that," the man was saying, watching him with concern. His voice was an urgent whisper. "Where's your mask? Take one step outside without it, you'll be coughing up bloody foam. It can kill you that fast. Here, look, I've got a spare. Can't be too careful. I had one fail on me once,

and I've carried an extra ever since. Took some real damage that time. I hope I don't get in trouble for this, but you need it more than I do. Come on...train'll be coming into City 17 any minute now. Get this on."

He found he could hardly raise his hands. Life was slow in returning to them. As he tried to get his bearings, the stranger slipped a mask over his face, let the straps fall tight behind his head. A taste of stale carbon, and a moment that felt like suffocation. Then he began to calm down...reminded himself to think, study, plan his moves. Gordon peered out through the slightly rounded goggles at the dilapidated car.

Torn seat cushions; dingy light fixtures, half of them burned out; the floor strewn with cinders and sawdust and crushed cigarette butts; brushed aluminum panels showing marks of peeled-off advertisements. Here and there posters of a solemn face, owl-eyed, watching over the passengers. Always the same expression. Always some variant of the same brief message: THE CONSUL SAYS...RELAX. THE CONSUL SAYS...REPORT.

"There you go."

The stranger fell back in the opposite seat, across the car, looking relieved and smiling slightly. Beyond him, the windows opened onto a blasted landscape. Wrack and ruin, desolation, shattered shards of a half-known landscape that only partly resembled anything he had seen before. It was as if the world he had known, the former world, had been lifted up entire and dropped from a great height. Crushed buildings; teetering spikes with frayed wires dangling from them. Fat, bloated trees that seemed to snatch and sniff at the train, as if sculling dusty plankton from the slipstream.

"Name's Samuel, by the way. Samuel G-11789RF, if you want to be formal. Came through here, saw you laid out like that on the bench, I thought you'd already bought it. Don't know how they'd let you on the Express without a mask anyway. You must've been working in a dome, right? Out in the Waste? We were wondering why they'd stop the Express out in the middle of nowhere like that—never seen that before. Are you from City 17 originally? I got my Notice a couple days ago: Shift to 17. Same old game. Shuffle the population, keep 'em confused. Spent my last trimester in 49. I've never been in the same zone more than six months. 17's supposed to be nice enough. I hear the Consul's been stationed there for the time being. Might even get a look at him in person. Some people still hate him, but I say...how can you hold it against him? It was strike a deal or lose everything, right? We owe him big-time, the way I see it. I'd sure like to see him in person. Hey...there it is. 17."

Gordon shifted, looking out the window behind him. Something immense sprawled on the horizon, a shadow glimpsed through shifting gases like smoke perpetually rising from the ruins, as if they harbored a fire that could never be extinguished.

A city.

Layered towers paled into distance, located somewhere beyond the tangled sprawl of debris that made a menace of the landscape. Tiers of buildings of uncertain age and architecture rose in ranks, stairlike—a self-contained metropolis, sketched in acid mist. Beyond those, harder to see, an immense irregular spire with its tip lost in the fumes that hid the heavens.

Samuel said, "I've gotta say...it looks a lot like 49. And 40 before that. They all look pretty much alike from this distance. Only when you get into them can you start to get an idea of how the place looked before...you know. Just before."

Gordon didn't see the tunnel coming. For a moment he thought the smoke had thickened so suddenly it had put out all light; but the sound of the train closed in around them, trapping them in a tube of darkness. Not long after that, a few dim lights flickered past, casting their wan glow on a gray amalgam of broken rock and cinderblock crammed together with bits of scrap metal. He thought he saw a human femur jutting from the wall; a rounded socket that could have been part of a skull. They passed through a portal of sharpened steel, razor-edged doors retracting for the train, and the walls became smooth, dark, regular. And then the wheels were screaming. The train seemed to sway on the track as it started to brake. Lights flared ahead, space opened around them, and they floated into the station.

"Now arriving," said the train. "City 17."

OLD FRIENDS

It was drizzling, and the rain hissed where it hit the pavement, something in it eating away at the traces of old concrete. There wasn't much of that left anyway. The sidewalks were inlaid with heavy sheets of colored rubber, reminding him of the acid-resistant floors of the Black Mesa labs. The rubber tiles formed color-coded paths between buildings like prison blocks made of worn, acid-etched cement; little openings in the heights caught traces of whatever light managed to sneak through the ominous filter of the sky. He wondered what it took to warrant occupation of one of the rare apartments furnished with a window, when most of the cells within must have been windowless. They made him think of towering bunkers, fortified as if the inhabitants were perpetually fearful of invasion.

He followed an orange path until it veered and dipped below street level. He could see some kind of

checkpoint down there. Remembering the scene at the train station, he knew better than to follow the path to its end. Hoping no one was watching him, he sidestepped to a yellow path and kept going.

How long could he keep this up? Without an ID card, could he enter any building without being challenged? How would he find food? Where would he sleep? He remembered the homeless people, the city-scavengers of his own time, forever shifting from spot to spot, harassed by police if they ever tried to settle down and rest. No wonder so many of them went mad. And this was infinitely worse for someone outside the seamless system. Someone like himself.

Off to one side, Gordon noticed a wide opening at street level. No colored paths led to it directly. He heard bright electronic noises from within, and the incongruous sound of human laughter. Laughter was the last thing he expected to hear in the streets of City 17.

As he watched, a suited figure of smallish stature stepped off a green track and strode through the doorway. Two Metropolitans in armored uniforms, faces hid behind mirrored visors, were stationed at the entrance. They didn't give a second glance to the person going in; didn't ask for ID or anything else. Gordon knew that if he hesitated he would only draw attention to himself, so he made the decision in an instant and followed the other into the laughter.

Inside it was dark and cold and his feet crunched through discarded rubbish he could hardly see down in the gloom. But the noise and flashing colored lights were in stark contrast to everything else he had seen of City 17. He recognized the kind of place it was instantly.

An arcade.

The walls and aisles were lined with video games, and almost every console was occupied. Suited citizens stood at the cabinets in a stance familiar to Gordon from every arcade he'd ever known. Tensed over a joystick, bodies twitching this way and that, one hand slapping a bright red button. From the speakers came whirring electronic sounds, shrill buzzsaw whines, and bright little shrieks cut off in mid-scream.

Gordon drifted to the nearest console, where the word HACKMAN was emblazoned as a shiny silver hologram. Glancing over the shoulder of the player, he saw surprisingly primitive graphics.

He was staring at a maze made of pipes, through which the player was steering a small disk that looked like a circular sawblade. A lurid little cartoony sprite popped up in one section of the pipe-maze, a crude human figure with two or three animations that made it appear to be running. The player leaned into the screen, deftly sending his little sawblade sliding through the circuits of pipe until it was right on top of the blinking enemy. The blade hit the man-sprite and sliced it in two, sending out tear-shaped drops of bright red blood and a round of synthetic screams. The player gave out a high-pitched laugh that marked him as most likely an adolescent boy, otherwise unidentifiable inside his acid-proof rubber suit.

The screen flickered and scrolled up a menu: GOOD WORK! YOU'VE CLEARED THE SEWERS. ARE YOU READY TO LEVEL UP?

The boy slapped the red button, hard, and a new selec-

tion of weapons popped into view. They were all variations on the first buzzsaw: Larger, faster, sharper.

SELECT YOUR NEXT MANHACK!

At that moment, someone tapped him on the shoulder. Gordon spun and found himself staring into the mirrored faceplate of the Metropolice. He tried not to panic. Even in here, in the dark, he knew he could not escape. He looked down and saw the cop's stunstick held an inch from his abdomen.

The cop leaned close and whispered, "We don't have much time, Freeman. Go north and find the old radio tower. I'll meet you there."

The cop moved into the crowd. By the time Gordon's panic settled, he found himself already moving onto the street. The Metropolice at the door stared straight forward, impassive. He stepped onto the yellow strip again, heading what he hoped was north, although down between the towers it was almost impossible to separate one shadow from another, or estimate the position of the sun. He didn't waste time questioning why he would follow a stranger's directions. It was enough to know that someone recognized him, but hadn't turned him in. What choice did he have?

At the next intersection he pretended one of his shoes was coming loose. He stepped off the track so as not to impede the pedestrians marching along behind him, and knelt to fiddle with the straps, meanwhile glancing to either side. To his left, down the canyon whose walls were made of tenements, he saw a spidery hulk of corroded metal, something the acid mist had blurred into the merest webbing of a structure. It might have been a radio tower, once.

A blue stripe led him most of the way, and once he was in the shadow of the tower, he found it easy enough to leave the track completely without fear of being spotted. Almost no one else was visible on this avenue. The tower was surrounded by barricades, wood and wire and concrete.

As he looked for deeper cover, he heard a hiss: "Over here."

A bit of plywood gaped, and he saw the glimmer of the cop's visor beyond it. Gordon hurried through.

Beyond was a weed-strewn lot, with the remains of a shattered building in the center. The tower rose from the rubble. Why it hadn't simply been leveled, he couldn't imagine. But there was little time to wonder. The cop gestured toward the fallen walls that foamed and hissed in the drizzle, then hurried down a flight of broken steps into what was left of the basement. Gordon descended into shadows. He heard a door creak open; the cop went through and Gordon followed. They continued on in darkness for a moment, and then another door opened. Gordon stepped into an underground passage, a substreet service tunnel where a few yellow bulbs still burned. The cop stopped, blocking the corridor, and Gordon suddenly realized that he was at the other man's mercy.

The cop sheathed the stunstick in the strap at his waist, then put his hands to the helmet and began to work at the seals. There was a pop and the visor went up. Gordon found himself staring into a face he knew instantly, although time and trouble had pared it down to its essentials.

"Yeah," said Barney, with a hard grin. "It's me. We can talk about old times later, maybe. Right now, we've got to

keep moving. There's someone else here you'll want to see."

Barney turned and headed down the passage. The tunnel was choked with debris no one had any reason to clear; they scrambled over shifting piles of rock, scattered cans. Once something loomed up in front of them, a shape like a dog with double rows of back-slanted teeth. It was doglike but it gave no warning, didn't bother to growl—it simply charged. Barney lunged with his stunstick. There was a sharp crack, the smell of ozone and scorched skin, and the creature fell, wheezing. They picked their way around it.

"Hurry," Barney said. "It's only stunned. It'll be up and looking for us in a minute or two."

Before another minute had passed, Barney led them to a ladder. There was a metal panel at the top. Barney hammered on it with his stick, and second later it began to squeal. Barney climbed up, then turned to help Gordon.

They stood in a room with broken, peeling walls, but a room that clearly saw use as a rude laboratory, judging from the jury-rigged diagnostic devices, bits of scavenged glassware, bales of multicolored wire. The only light came from a bulb strung up over a workbench that had been fashioned from an old firedoor.

When the plate slammed down behind him, the ringing had hardly faded from his ears before Gordon heard another voice, familiar but weirdly out of place.

Leaning against the crude workbench as if it were a crutch, half in shadow, was his mentor from Black Mesa and, before that, MIT. Dr. Kleiner looked even more weathered than Barney. He wore an eyepatch over his left eye, and that side of his face was a mass of twisted scar tissue.

"Yes, Gordon, it's me. We had word you were coming, but even so, it's strange to see you in this place after so long. You look...hardly worse for the wear. The last 10 years must have been easier on you than on the rest of us."

"I've been in City 17 about 6 months," Barney said. "They rotate us cops around from city to city every nine months, sometimes less. Dr. Kleiner here's been hiding out for nearly two years."

"Well, not exactly here," Kleiner said. "I snatch bits of time down in my laboratory, but otherwise I'm a dutiful citizen of City 17. If I weren't, I'd be out in the wasteland with the rest of the refuse, or taken for a Servitor more likely. While they still value my mind and my expertise, they treat me fairly well. But if anyone suspected I had work of my own to attend to, well...no one lasts long in such circumstances."

"Show him what you've been working on, Doc."

Kleiner stepped to a battered cupboard and began twirling the dial of a padlock. "This came to me several years ago, through unusual circumstances. Suffice it to say there was one other survivor of Black Mesa who seems to have kept his...connections...in the halls of power. He suggested that if I could restore this to working order, adapt it to our new circumstances, it might find use again someday. And now I believe it may."

The cupboard swung open. Inside, much altered but even more familiar to him than the sight of Barney or Dr. Kleiner, was Gordon's old hazardous environment suit.

"The Mark V, Gordon, just as you remember her. I'd call her the Mark V-Point-Five at this point...she's seen a bit of modification, as you'll learn. I did the best I could with the tools at hand. She can draw power from Combine chargers now, the same units used by the mechs and Combos, and by the police for their powered armor. That's the main change. Why don't you try it on, eh?"

"Yeah," Barney said, shifting nervously from foot to foot. "We should hurry."

As Gordon eased into the suit, Kleiner kept rattling on: "I was advised you might not be aware of all the changes that have come to pass in the last ten years, Gordon. There's no easy way to make it all digestible. After the events of Black Mesa, the world spun out of control...creatures teleporting in randomly, terrorizing the countryside. The more tenacious species established footholds and ate their way through the local fauna, including humans, until most of us were driven back into the cities for self-defense. The infrastructure was strained past the breaking point. And shortly after everything collapsed, the Combine arrived. The old city centers, everywhere, simply disappeared. Huge chunks of Earth torn away from their moorings, leaving gaping craters. Moments later, something new took their place. The Citadels, including the one you've seen at the center of City 17. That was the first we knew of the Combine, and they've been with us ever since. We started to put up a resistance, yes, but before we could determine if it was futile or not, one man sold us into our current condition. The Consul, in exchange for his own hide, and a promise of global power, delivered us into slavery. And here we have languished ever since. It's not common knowledge, but our birthrate has declined steadily for the last five years; we'll be at zero before long. And the cities, the inhabited sections, are smaller every year. They keep closing us in. And as for the planet itself..."

"Come on, Doc. He's suited up, we should get going."

The suit pinched; it was patched with tape and rubber sealant, and there were some new sockets in the power panels. But otherwise it was the suit he remembered. As he tightened the last clamp, the old voice clicked on:

"Welcome to the HEV Mark V protect...protect...protect—for—for—hazardous environ...."

The voice slowed to a drawl and faded out.

Kleiner grimaced. "Sorry about that. It's never going to be new again. But it should keep you safer than you would be otherwise."

Barney pushed open the door to the lab, and they stepped out into the interior of another abandoned building. A second door opened into a narrow alleyway, and beyond that was the street with its colored stripes. Barney led them out to the sidewalk, where several pedestrians were marching along at a steady pace. Barney pointed out a kiosk at the side of the street, marked with a bright image of one of City 17's buses. They took up positions at the bus stop.

"Be ready for anything, Gordon," Barney said. He had forgotten to push down his visor. Before Gordon could say a word, a bus squealed to a stop in front of them.

The doors hissed open. The driver inside was armed and armored. He glared down the steps and said, "Move it."

Barney grumbled back at him, flashing a badge. "I'm escorting a prisoner. Get down here and give me a hand."

The driver muttered under his breath, but he got up and started down the steps. As he stepped out, Barney jabbed him in the gut with his stunstick. The guard crumpled to the sidewalk, moaning. His own stunstick clattered on the steps.

"Get in!" Barney said. "And grab his stunstick."

Kleiner leapt up the steps. Gordon snatched up the stunstick, then clambered into the bus. Barney slid into the driver's seat and cranked the doors shut. Outside, the stunned driver was just getting to his feet, shouting. He hammered on the doors just as Barney pulled away from the curb.

"Hold on," Barney called. "This could get rough."

Gordon saw the driver running toward the bus kiosk, hitting a sentry alert button. That was hardly necessary, since the low-flying "Combos" that perpetually cruised the streets had already processed the import of the scene they'd just witnessed. Alarms seemed to be going off everywhere. It was as if the city, which had been content to slumber while its citizens went through their dreamlike days unquestioningly, suddenly awoke.

Two of the Combos dropped down on either side of the bus, pacing it. Gordon flinched away from them, expecting to be caught in a crossfire, but something more sinister occurred. Both of the hovering mechanisms bore small monitors where a windscreen could have been; he had thought them sensors, but suddenly they flickered and came alight. He saw twin images of himself captured there; they had managed to scan him from outside the bus. Barney pulled the bus hard to the left, taking an impossibly sharp turn, and one of the bots smacked into the side, shattering the glass. It dropped from view. The other was left behind as he spun into a narrow street.

Outside pedestrians were screaming as Barney ignored the color-coded walkways, barreling toward a destination of his own choosing.

Gordon glanced back at Kleiner, who was clutching tight to a seat-back, his face gone completely white, his one eye staring out the side of the bus.

"Oh God..." Kleiner said.

Gordon followed Kleiner's gaze and saw the Citadel at the center of City 17. Something about it was different. The odd, irregular guy-wires that ran down from the spire into the body of the city had begun to twitch and tremble, the uppermost wires grasping at the air like antennae, sensitive to every motion. Gordon knew there was only one thing likely to have gained their interest.

The filaments wove together in a flexible mass, gathering a myriad of jeweled tips into a single burning eye. He was glad when a tenement block came between them, hiding the tower from view.

An instant later, the same building shattered and exploded in its entirety. Through the cloud of debris, as the building was obliterated, he saw the spear of blazing plasma that the tower's Eye had aimed upon the tenement without any thought of its inhabitants.

The rubble settled, the bus sped on, Dr. Kleiner screamed, and another building exploded—this time just ahead of them.

Barney swerved to avoid the avalanche of cement. Chunks of concrete smashed down on the roof, crumpling the back half of the bus. There was no way they were going to live through this. Barney kept speeding grimly onward, this time taking aim at one of the city's well-fortified gates.

All pedestrians had wisely leapt for cover, but the city's guards were more stubborn—or more stupid. Heavy steel plates began to clang down across the end of the road. Huge gun turrets came to bear on the oncoming bus. Bullets began to rip into the windshield, gouging through metal. Dr. Kleiner moaned and clapped a hand over his arm, stanching a sudden gout of blood.

"Now, now, now!" Barney cried.

They were speeding straight toward the steel barricade; at this velocity there was no chance of surviving such an impact.

But an instant before they hit the wall, the tower targeted them once more—and narrowly missed. The plasma beam struck the barricade. The steel shimmered and exploded into fragments. The city had burned a hole through its own shell, and Barney steered the bus right through it.

Ahead, a pall of smoke and vapor descended on the road. The police continued to fire at the rear of the bus, but the hail of bullets quickly tapered off.

Barney glanced back over his shoulder, failing to suppress a delirious grin as the shattered gate receded behind them.

"Ha ha! That's it for—"

He never finished the sentence. The road must have twisted, or there was something in it that smacked into them. The next thing Gordon knew, they were rolling amid the sound of tearing metal. He was flung and came down hard among twisted steel and torn seats and the sound of the engine sputtering out.

Someone was moaning. He got to his knees and moved through the murk. He found Barney lying on his back, gaping at the vapors overhead. Barney moved his head a fraction of an inch and gave Gordon a brave and desperate grin.

"You—you'd better get out of here if you can," he said weakly. "Don't worry about...us. We'll...be...fine."

Barney began to cough. Blood foamed at the edge of his mouth. His fingers moved slowly to his visor. "Damn stuff...hardly any air in it..." He pulled the visor shut; the seals clicked. Then he fell still.

Gordon looked for Kleiner, couldn't see him. He moved forward. They seemed to have crashed down into a ravine. Somewhere up above he could hear sirens and a scrambling noise that sounded like someone dispatching a pack of dogs to hunt for him. He had a feeling they didn't use dogs for such work anymore. Down here was a thick sludge, sewage or something worse. Just ahead was a dark opening, the mouth of a pipe tall enough to stand in. There were gratings across the pipe mouth, but the slime and the vapor had eaten away at them. Using his fists and a hunk of rock, he managed to break away a section large enough to squeeze through.

Behind him, he heard the rumble of vehicles. He moved quickly forward into the pipes, grateful that he still carried the bus driver's stunstick. It was better than nothing.

Light trickled down from gratings overhead. He moved from one dim spot to another, hoping there was nothing worse than sludge to trouble him in the dark spots in between.

He was in the sewers now. He remembered the flashlight built into the suit, and was relieved when he switched it on. Kleiner had improved on the design somewhat; he had a fairly good light now. He pressed forward, wanting only to get away from the city. It occurred to him that he had seen pipes somewhere else today. A maze of pipes. Where?

Then he heard a new sound, coming from behind, coming to chase him deeper into the sewers, and it occurred to him that this too was strangely familiar.

A sound like a buzzsaw keening....

The only thing missing was the laughter.

SCRAPLAND

The grating squealed and swung down with a bang, sending sharpened clouds of corroded iron gritting into his eyes. The hatch would have taken a chunk from his shoulder had he not been wearing the padded suit; as it was, he nearly lost his grip on the rungs, and for a moment hung kicking his soles against the mossy interior of the access pipe. Then he was up and bellying out among sere thorns and broken asphalt.

Twisted rebar, a furl of cyclone fencing, a freeway guardrail that had been crumpled and tossed aside like the foil wrapper around a stick of chewing gum. Farther off, piles of the stuff, more than the eye could resolve, mountains of debris seemingly composed of every object he had ever known. Refrigerators, streetcars, a toppled ATM machine still embedded in concrete; stubborn flags of grubby, but undecayed, plastic; the scalp of a doll with its nylon hair seared back to molten blobs. Gordon struggled to his feet, dusting tiny bright shards of shattered glass from arms and knees, more thankful than ever for the HEV suit.

There was a whirring sound behind him, echoing up from the tube.

In a sudden panic, knowing what it meant, he turned and fell to his knees, digging down into the tube to grab at the dangling hatch. He hooked a finger in the uneven grating and hauled up, the suit's servos kicking in to augment his strength. But the HEV's new mechanics, never properly adjusted to its old wearer, overcompensated. The hatch came up so suddenly that it twisted in its hinge and broke completely free.

From below, in the dark, a flash of silver.

Gordon dropped the hatch as the Manhack came spinning up the tube.

Corroded iron hit the rising blade and bore it backward down the shaft, however briefly.

He could hear it grinding down there, working its way free. Another instant and it would be on him.

Gordon whirled and sank his gloves into a pile of pretzeled rebar clotted with cement chunks. He dragged the pile to the edge of the hole, grateful now for the augments, and watched it tumble in. The Manhack's whir dimmed perceptibly. This was followed with another heap of masonry, a cinderblock, the rim of a wheel with a few shreds of truck tire still clinging to it. The din further muted.

At last he uncovered a huge black can full of cold hardened tar, tipped it over, rolled it to the brink and kicked it down. A loud thud, the sound of settling grit, and then silence. The Manhack whined a few times, then went silent.

It was under there; he knew he had not so much disabled as inconvenienced it. But he felt sure its human operator would give up entirely before bothering to work the thing loose. It would be so much easier to switch to another station, or select another hunter from the menu.

Humans lacked the patience of machines.

Before stalking away, he found an ancient bathtub, one clenched lion claw still intact, and tipped it over before hauling it into place as a cap for the pit. Unlikely anyone would fall in there by accident now.

Still, there was no easiness in his stride as Gordon made his way through the wrack and ruin that had been piled

against the margins of City 17 as if by giant bulldozers. He could hear the baying of something that wasn't quite a wolf, and then there were the far-off echoes of landslides from among the junkpiles. What could be moving around out here, huge enough to disturb the massive piles? The answer that came to him was worse than the worry: It could be anything. He had no idea what now stalked the lands beyond the city walls. Maybe the citizens had had good reason to withdraw into the protection of the Combine. Maybe the Combine had wanted it that way....

...

He became preternaturally attuned to the sounds around him. The only problem was that few of them were familiar, apart from the creak of metal in the occasional gouts of scouring wind. Inside his respirator, the air was growing stale; each time he adjusted it, an acid taste crept in, a poisonous tinge that seemed to coat his tongue. He wondered how long a filter could hold up. It was easy to imagine this atmosphere eating holes in the thing.

What was that...? A familiar sound, made eerie only by its incongruity in this place of ragged edges and decay. It was music...something old and half-obsured by static, but stately despite that. Bach, one of the Brandenburg Concertos, filigreed and ornate and utterly out of place in this landscape of active chaos and utter disarray.

Less mindful of his footing, urged on by the music, Gordon mounted a shifting slope of medical debris and found the Bach at its source. Below him, in a small depression among the scraps, a battered Dodge van lay with its nose hidden as if it had been rooting in the garbage, its tail thrust into the air at a jaunty angle, the rear doors flung wide. Light poured from the open doors, and with the light came the music.

There was no one in sight. It seemed impossible that every creature in the scraplands had not been drawn to the sound of the Brandenburgs, but Gordon was alone as he shuffled down the far side of the slope and crept to the tail of the van. Peering inside, he saw no seats, no dashboard, no windshield. The shell of the van, fused with what looked like heat-bored rock, extended at an angle for 40 or 50 feet into the Earth, and at the bottom of the slope he saw a tarnished brass standing lamp with a red shade, emitting warm light. It looked like the border of someone's living room. The music came from somewhere beyond the lamp.

Testing the edge of the van for stability, he eased himself past the fender and settled down carefully, so as to make no sound. Then he started to slide, letting himself down inches at a time. The metal floor creaked once, softly, and then he was into the rock tunnel. As he shifted his weight forward, preparing to creep, the doors of the van slammed shut with a thud, trapping him. The crash echoed down the tube, merged with the sound of Bach, and abruptly the music cut off. Just short of the lamp, a second barrier clamped down, sealing the far end of the tunnel.

How easily he'd been caught.

As the music died and the clanging faded, he became aware of a muted groan, the hopeless whirring of an engine on the verge of flooding. Then a roaring rumble, heavy clanking. Something huge came lumbering past the end of the tunnel and stood there, blocking off the light. He could see a milky white dome mounted in a dust-clogged grille, like a glass eye crazed with cracks and dirt; it spun lazily to follow him as he tried backing up the tunnel. Then it put out a hand, a claw made of scarred metal, with frayed black tendons and wire ligaments. As servos whined, the inner barrier lifted. The thing stooped in to reach for him, and Gordon frantically scrambled back.

"Hold still," said a resonant voice. "If you mean no harm, you have nothing to fear from us."

He looked for the source of the voice, saw nothing.

"Settle down, Dog," the voice said.

The machine lowered itself to the earthen floor of the tunnel and its straining engines muted back to a low hum. Its reaching hand retracted. It looked like a huge battered beetle squatting there with its legs pulled in; hard to tell what processes might still be at work behind the huge blurred eye.

"Come out, now," said the voice. "Come carefully and there will be no trouble. If you intend us harm, then I should warn you that Dog will respond instantly to disarm you. And he is not capable of gentleness."

Gordon crept out, past the raised barrier and the quiescent mech. The corridor wound away to other rooms, to deeper levels. He could hear running water, generators, more music somewhere in the distance.

A man stepped out from the mech's shadow. Once dramatically tall, he now possessed a dramatic stoop. Grayish hair that might once have been blond; a badly cut beard that grew up over scarred cheeks. His deep, commanding voice seemed at odds with his somewhat wasted frame, which was wrapped in a tattered mechanic's coverall, slung with utility belts, the pouches crammed with tools and components salvaged from the wasteheaps outside. He walked with a stick made of matte black steel wrapped with wires, embedded with lights; several small buttons scored the grip of the walking stick. It looked like a weapon, but Gordon suspected it was nothing so simple as that. The man stared at him for several moments; Gordon felt himself being measured, judged. Then he thrust his head forward, one piercing blue eye skewering Gordon, holding him.

"You're the one they're looking for," he said. "After all these years, I've caught something worthwhile in

my trap." He nodded toward the ramp leading down to deeper chambers. "Follow me, then. Dog—come!"

As Gordon moved after the old man, he heard the mech rouse itself behind them. It stood as tall as it could in the low passage, but he felt certain that its telescoping legs could push it up to a much greater height.

"I'm Eli," the old man said as he walked. "The Junkman. You've met Dog. As for you... your name is everywhere now. They've identified you from some very old records. I'm surprised the Combine held onto such documents. I'm always interested to discover what they consider worth preserving. Most of what makes us human they consider disposable. And yet the records, the paperwork... they've devoted great labor to making that immortal. I suppose I should feel some comfort that my name and number will still survive in one of their files, long after I myself am gone."

Dog shambled after them, dragging bare sparking wires as if it were a streetcar sweeping the ground for a charged track. It was pitiful despite its immensity. It had obviously been a thing of great power once; but now it looked like something the Junkman had dragged off the scrapheaps and restored to its least capacity.

"There... the Consul's coming on again. They've been looping this broadcast all day. The escaped non-citizen, the violator... the Vector of Death himself, Gordon Freeman."

Gordon looked around to see where he'd been taken. A room hollowed from the Earth, really no more than a widening in the passage, but lined with worn-out couches and chairs, a low plastic coffee table covered with machine parts. Across from the couch, a splintered pallet stood propped against the wall; from that an old flatscreen television was hung on a bent nail; it looked like an antique, its screen scarred as if wild dogs had tussled over it. And on the screen was the face Gordon had seen everywhere in City 17. The Consul. The man no longer looked placid and reassuring; every feature, every gesture, had been given over to threat.

"We cannot confirm that the Vector has departed City 17. If he has, the Wasteland predators will make quick work of him. But rest assured that we have not relaxed the search in your city. The Combine will do everything in its power to ensure the safety of its citizens. Again, Gordon Freeman represents a vector of chaos and death, an incursion of the insanity and incivility of the world we have tried to diligently to put behind us. We are doing everything in our power to arrest and expunge this threat to the promised peace that the Combine has graciously extended to humankind. I exhort all citizens to do everything in their power to help us apprehend the Vector. Report all suspicious activities at once. If you spy Freeman, make no effort to interfere, but summon the nearest Agent, and activate all available alarms. Every such report is treated with utmost severity, and false alarms may be punishable by immediate execution."

The old man, the Junkman, Eli, looked over at Gordon and chuckled with undisguised glee.

"Well, well," he said. "You are most welcome!"

ALYX

How long he had slept—how he had even managed to sleep—Gordon was unsure. The sound of the tracks clattering somewhere underneath the boxcar must have lulled him. And he had been moving nonstop for so long now; no wonder exhaustion had finally claimed him. But suddenly the pitch of things changed. There must have been some hint of it, reaching into his dreamless sleep like a premonition, for he woke a moment before there was any overt reason to awake. He was still alone in the munitions car, hidden among the crates and canisters, all of it gently shuddering from side to side, the smell of machine oil and the stink of diesel filling the air. He was hungry, with his meal at Eli's now many hours behind him, and it was cold, as if the suit's regulators were not functioning properly. He was beginning to develop a dread that the HEV might crap out at any moment, leaving him stranded, with its memoflex joints frozen into a rigid state, its autolocks dead. Here he would lie, awaiting the arrival of the guards like the rest of the cold unmoving crates in the car.

But the dread had little time to develop, as the explosion cut it short.

The train rolled sideways, flung from the track. The crates that had shielded him now flew away from him, and he curled into a ball to let the suit protect as much of him as possible from the heavy containers. Even several of the cases strapped to the walls or bolted to the floors tore loose in the moment, the immense torque shearing steel bolts clean off. Gordon came to rest as an alarm whistle shrilled; he had managed to land on top of a cabinet the size of a refrigerator. He could hear shouts, gunfire, more explosions in the distance. He stood up on the cabinet, reaching for the side loading door which was now directly overhead; he could barely reach it, and knew there was little chance that it would budge, even with better purchase.

Suddenly footsteps clamored across the door. Paused. He imagined soldiers up above, swarming to protect their shipment. Something clanked down on the thick metal with a maddeningly familiar sound. Where had he heard it before?

The faint high-pitched whine of an activated detonator brought the memory into clear focus.

Gordon leapt for the farthest corner of the car, sheltered by the cases that had nearly killed him, hoping that now they would save his life.

The blast came the instant he hit metal. Shrapnel seared the back of his head; there was an acrid tang that sent him up coughing. It was partially from the open air, partially from the explosive. He rose up involuntarily, wracked with fumes, and saw the night sky above him. The current ceiling (once wall) of the boxcar gaped inward like a scorched metal flower. There was a pair of legs dangling in past the sharpened petals. Legs sheathed in black, heavy boots swinging back and forth as if the wearer had just dropped down at the edge of a pond to fish. But instead of a fishing pole, there was a gun trained down on him, its laser sight picking him out in the smoldering dark. He shaded his eyes from the red beam, and heard a soft voice whisper something like, "Check him, Snitch."

Gordon gasped as a thing hopped down into the car and came toward him, hopping from crate to crate as it sniffed him out. It looked wet, permanently; the colors were of a toxic brilliance; he couldn't find the eyes, but it had far too many teeth. It crouched above him, flicked its tongue out for a taste, and he felt an acid welt begin to rise across his cheek.

"Don't move," said the person above him. "One bite and you'll be dead by your next breath."

Then he heard a thud, and the figure dropped in. He knew instantly—even with the heavy black gear, the belts of ammo, the goggles and the short-cropped hair—that it was a woman. She crept up until she was next to her pet. She made a click with her tongue, as if gentling a horse, and the thing wound around and flowed onto her shoulder, settling itself there like a glistening stole.

A light clicked on, blinding him. And she gasped.

"You!" she said. "What're you—"

At that moment they both heard footsteps outside—grinding through cinders, it sounded like. She switched off the light and he felt a gloved hand over his mouth. As if he needed silencing. The steps were coming closer, but there were no voices; they must have had a way of communicating silently. He had no doubt the car was being surrounded.

"All right," she whispered, "I'm going to trust you. I can use some help carrying stuff anyway. Take this, and come on up."

She unhooked something from her belt; Gordon felt a weapon pushed into his hand. He wasn't sure what it was, but he found a trigger, and that was enough to get started. She gave him her hand and he scrambled up onto the box as quietly as he could. She hooked her fingers over the edge of the blasted opening, hauled herself up, knelt there in silhouette on the top of the car. As Gordon started up, she began yanking grenades from her belt and lobbing them down into the shadows around wherever the car had come to rest. The explosions were mixed with the sound of metal tearing, and ragged screams. Gordon rose up beside her, firing down at the figures moving below. The faint light that pervaded the open tracts of wasteland gleamed on metal, but he couldn't be sure they weren't men as well. It was over in a few moments; she had an uncanny accuracy with the grenades that didn't seem to be entirely related to their advantage of height.

"More on the way," she said. "Big ones. Let's stock up and get out of here."

She ducked back into the boxcar. He heard a muffled explosion as she blasted open a container down below, then she started tossing smaller cases up to him. A moment later she was up again.

"Oh, I'm Alyx," she said, stuffing the cases into random pockets on her outfit. "I already know who you are. And I think I can probably guess where you're going."

She pointed out a mounded shape, just visible through the enveloping smog; it looked like the shell of a vast slumbering beetle; a streamlined mountain of corroded metal. From the density of the fumes, the stink in the air and the burning in his eyes, he suspected he had arrived at what Eli had called, "The Air Conditioner."

Alyx tensed and got to her feet, swinging her gun down into her hand. Something was coming. Out on the horizon, jaunting through the fog with a long-legged gait, more than one of them. He squinted, making out what looked like an enormous tripod, surmounted with a huge body, a faint sheen of lenses. He thought of Dog, briefly; one of Dog's cousins, at the height of its powers. There was a sullen flash deep in the eye of the distant thing, and suddenly he and Alyx were flung from the roof of the car. He came down hard in the cinders, lay there dazed for a moment, wondering where he was, until suddenly he felt tiny needles biting into his ear.

He came back to himself, pushing her little beast, Snitch, away from his head. The cub darted back, licking its jaws, baring the hypodermic teeth.

"She just gave you an adrenaline injection," Alyx said, holding out her arm as the thing climbed back up to her shoulder. "I didn't think you'd mind. Right now, we're going to need to *run*."

From the far side of the boxcar, the first of the tripods rose up and trained its eye upon them. The eye began to warm again, cycling up for another burst. Alyx had already scrambled away. Gordon was on his feet and running an instant before the *thought* of flight crossed his mind.

The landscape was coated in a poisonous residue, cinnabar and sulfur and whatever other precipitates came sifting down from the Combine's atmospheric reprocessor. Caustic particles drifted in a steady snow. Gordon clambered up a slope that crumbled into greenish powder under his gloves. Alyx was firing at something from the top of the ridge, then she leapt down into a culvert holding a thin stream of acid. Gordon splashed in after her, thinking he saw silhouetted figures on the far side—wondering if they had seen him. Alyx moved quietly up the gulley, but as Gordon followed he heard movement behind them. Tall shapes, gleaming armor, bristling with weapons, appeared on the edge of the ravine. So much for the advantage of height. Alyx noticed them at the same time he did.

"Shit," she whispered. "Combine Elite."

They looked like metal, but their movements were muffled, almost silent. Gordon never heard the squad that had dropped into the culvert ahead of them. All he knew was that suddenly they were surrounded....

WEATHER CONTROL

The first they knew of the Combine's arrival was a distant roar. Gordon looked to the sky, clearer now than it had been since his arrival, the thready strands of greenish vapor finally receding, actual sunlight beginning to strike through. The canyons of ice through which they steered the battered Bradleys threatened the first faint glimmerings of glare; he'd need sunglasses soon if it kept on like this.

But with the heart-lifting glimpse of the sky came the reminder of death—more of a promise than a reminder.

Slicing through the mists, so high that at first he thought them birds, came a swarm of ships. Light, swift aircraft passed across his vision long seconds before he heard the shock of their passage. The clouds swallowed them up. For a moment all was still. The Bradleys rumbled on, but the soldiers, Vance's men, grew silent and shifted their grips on their weapons.

A second later, they were engulfed in an explosion of ice. A canyon wall blew into glittering shards. Gordon saw the Bradley nearest to the wall hurled spinning across their path; it sank head-on into the opposite wall. Another explosion, this one somewhere behind, deafened him.

He could see the soldiers shouting, but heard nothing but the ringing. He knelt instinctively, trying to find some protection, and as he did he saw another of the Combine airships sweep low over the canyon, directly overhead. Something hit the ice in front of them. The men who noticed hurled themselves out of the back of the Bradley, as if the vehicle itself might offer cover. Gordon flung himself to the snow, and then was flung by the force of the blast.

When he regained his senses, he saw the other men struggling to free themselves from the mounded snow. A few did not move. Up ahead, a grayish figure covered in ice made a bold gesture, beckoning them forward. The soldiers staggered forward, as the surviving Bradleys continued to rumble up the canyon toward their destination. He caught a glimpse of Alyx's face in the back of the rearmost Bradley, and was surprised by the sense of relief that touched him then.

Tensed against further strikes from above, Gordon scrambled toward the ice-covered soldier. As he drew closer, he saw it was Vance himself, rallying the men, shouting orders he could barely hear. But the squad seemed to know what to do. Spread out across the width of the canyon, they hurried on, skidding and sliding on the ice. The canyon opened out, and around the next bend Gordon got his first sight of the Weather Station.

It was a low dome, jutting with antennae and radar dishes, tiny red lights blinking above them. Around the dome were more structures, built low and painted white, almost indistinguishable from their surroundings. The whole thing was sprinkled with snow, like powdered sugar, but it was hardly a pristine image. There had already been fighting here. Smoke rose from a crack in the dome. The soldiers stationed inside the station had massed against the Combine operators as the news of the uprising spread; the fighting had torn it apart from within.

Vance caught sight of Gordon, grabbed him by the arm, and thrust his craggy face close to Gordon's ear: "There's a cargo plane coming for you, Freeman, but god only knows how long it'll take to get here—if it makes it through at all. Once we get you aboard, you can take those chips back to City 17. But we've got to last that long. We'll hold off the Combine as long as we can from out here, then we'll fall back into the Weather Station. I'm not anxious to get holed up in there, sitting targets, but we're awfully damn exposed out here."

As if to underline his words, a shadow fell over them. Gordon looked up to see an enormous ship crest the edge of the canyon, so close that it seemed to be crawling across the ice.

"Jesus, that's a mech carrier," Vance said. "I didn't think they'd be here this soon. Get moving!"

To Gordon's horror, the carrier drifted to a spot between him and the Weather Station. He expected it to settle on the ice, blocking their route completely. Instead, a hatch gaped in its belly, and a huge metallic parcel was lowered to the snow. As the carrier lifted, the package opened itself, metal unfolding into a nightmare that by now had grown familiar. It was a mech, one of the same that had chased him across the wasteland and harried him and Alyx. It was a cousin to Eli's robot, Dog, but apparently new-minted, and still without blemish; there was nothing awkward or hesitant about its first steps.

Gordon stared at the thing in something like awe, but the soldiers shared none of his wonder. They had seen the mechs many times, perhaps even fought alongside them; but never before had they fought against one. Still, they didn't hesitate. As if they had rehearsed exactly such an encounter, they moved into defensive positions. Each man seemed to know his role. Gordon began firing at the metal shell of the thing, but without much sense of its weaknesses—if it had any. But the soldiers were more methodical. The mech began targeting them, neatly pruning men from the unit, but for every soldier it killed, another one seemed to advance further in the unit's plan.

Gordon's pulse quickened when he spotted Alyx down there, in the fray. She had leapt from one of the Bradleys while the others sped on toward the Weather Station, and she was coming up on the mech from behind. She had a grenade out, primed, ready to throw. Vance shouted something and ran straight for her,

and his cry must have distracted her—for the grenade went wide, exploding in mid-air to one side of the mech's "head."

The thing stopped, judging this explosive more of a threat than anything the soldiers carried, and began to pivot its heavy head to bear on Alyx. Gordon might have shouted something himself, but he was aware of nothing but Alyx standing there, looking suddenly so small, so alone, the brightest possible target in all that ice. He was running, firing helplessly at the shining carapace, running like Vance toward his daughter.

The mech's head did something, it pulsed with a faint glow as if powering up for a particularly lethal strike. One of the gun barrels swung toward Alyx, who backed away in atypical shock, as if she couldn't believe her throw had gone so wrong.

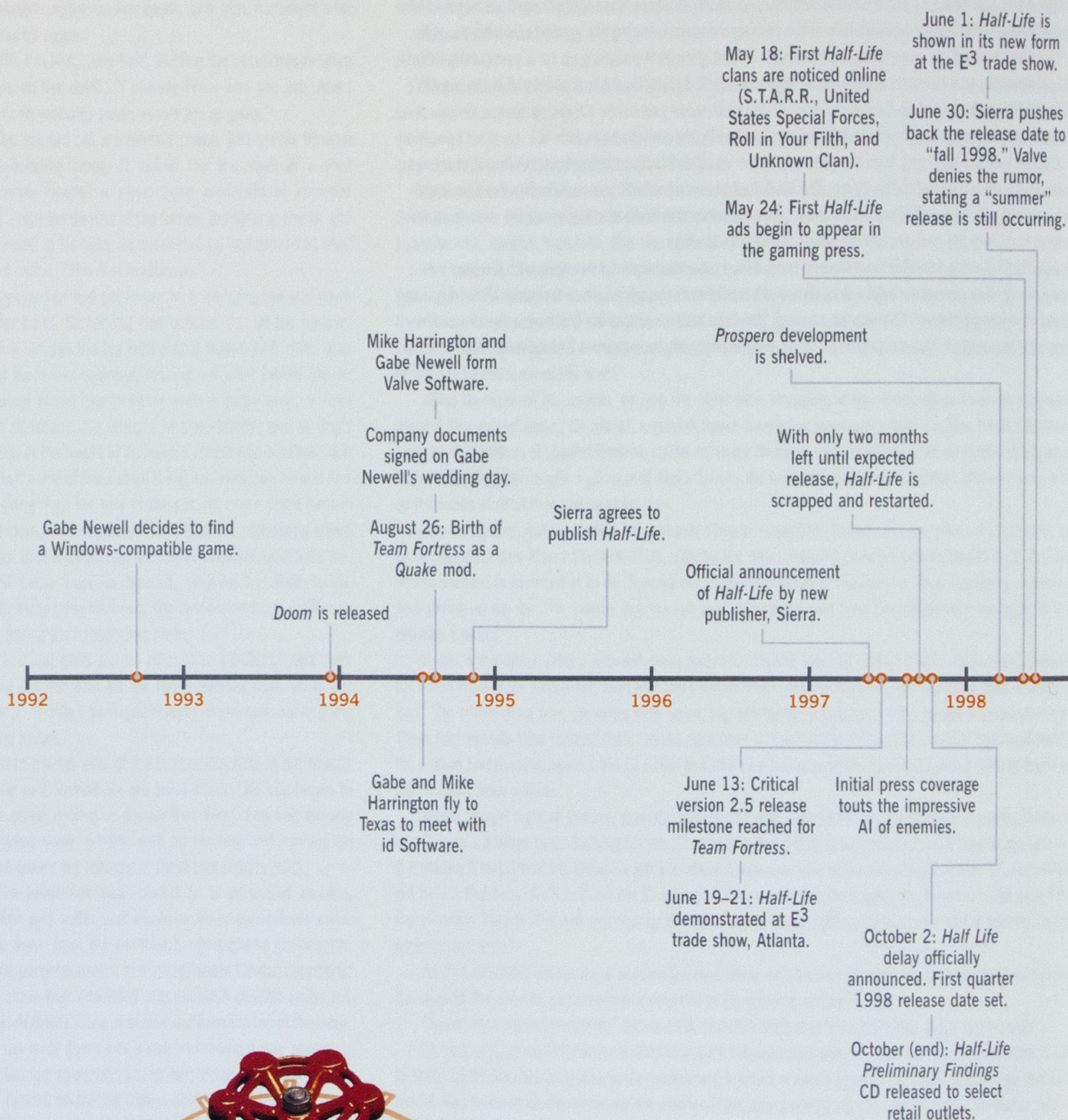
The mech began to fire, but in that instant its entire upper carapace exploded.

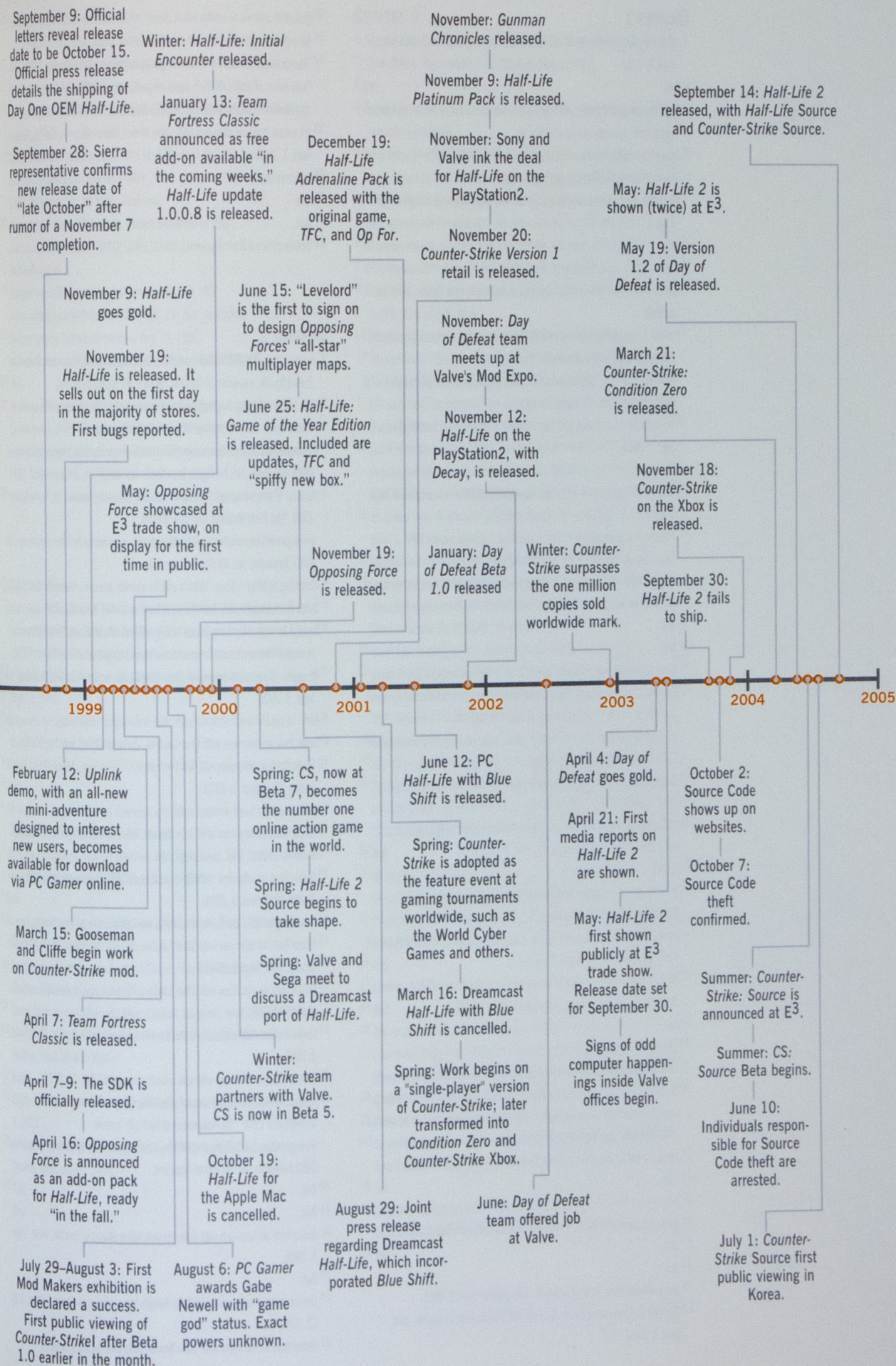
Gordon saw smoke rising from the direction of the Weather Station, trailing from the barrel of a huge gun located on the field below the dome. The blast had thrown sheets of accumulated ice from an installation of anti-aircraft weapons. And now other guns began to spit fire and missiles as the men from the Bradleys leapt into the bunkers and began to take on the airships.

Alyx had fallen, but by the time Gordon reached her she had regained her feet, with Captain Vance helping her up. She gave them both a brief flicker of a smile, then shrugged toward the guns. "They're going to need our help up there." She started running. She was still running when the next wave of shadows swept over the canyon, and the Combine forces—not merely advance guard—arrived in earnest.

PART 2: THE VALVE TIMELINE

The following dates chart the major announcements, setbacks, and days of interest during the creation and growth of Valve Software.





CHAPTER 1

- ¹ All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ² Ibid.
- ³ Chris Hecker's homepage, with links to articles and current projects, can be found here: www.d6.com/users/checker.
- ⁴ Excerpt from Chris Hecker's article, "A Whirlwind Tour of WinG," www.d6.com/users/checker/pdfs/gdmwing.
- ⁵ All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁶ Ibid.
- ⁷ Ibid.
- ⁸ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁹ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ¹⁰ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹¹ Ibid.
- ¹² Quote from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹³ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ¹⁴ Ibid.
- ¹⁵ Ibid.
- ¹⁶ Excerpt from an interview with John Romero, via email, June 21, 2004.
- ¹⁷ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ¹⁸ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁹ All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ²⁰ Ibid.
- ²¹ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ²² All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ²³ Ibid.
- ²⁴ Ibid.
- ²⁵ Excerpt from an interview with Dave Riller, via email, Oct. 21, 2003.
- ²⁶ By Geoff Keighley in GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ²⁷ Excerpt from an interview with Ken Birdwell via email, Sept. 20, 2003.
- ²⁸ Ibid.
- ²⁹ Ibid.
- ³⁰ All quotes excerpted from an interview with Yahn Bernier, Oct. 21, 2003.
- ³¹ Ibid.
- ³² Ibid.
- ³³ Quote excerpt from an interview with Yahn Bernier, Oct. 21, 2003.
- ³⁴ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.

³⁵ Ibid.

³⁶ Excerpt from an interview with Ken Birdwell via email, Sept. 20, 2003.

³⁷ The section features information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.

³⁸ All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

CHAPTER 2

- ¹ Excerpt from *The Mist* courtesy of *Skeleton Crew* Stephen King compilation by Signet Books, a division of Penguin Putnam. All Rights Reserved.
- ² Last portion of this paragraph features information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ³ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ⁴ According to Marc's bio on Valve's official website at www.valvesoftware.com.
- ⁵ Quote from an interview with Marc Laidlaw, via email, June 15, 2004.
- ⁶ Excerpt from an interview with Yahn Bernier, Nov. 14, 2003, at HalfLifeSource, www.half lifesource.com/forums/showthread.php?threadid=1151
- ⁷ All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁸ Ibid.
- ⁹ Quote from an interview with Marc Laidlaw, via email, Wed., July 14, 2004.
- ¹⁰ Quote from an interview with Ted Bachman[[QUERY: check](#)], Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹¹ Ibid.
- ¹² Quote from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹³ Quote from an interview with Marc Laidlaw and Bill Van Buren, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁴ According to Bill's bio on Valve's official website at www.valvesoftware.com
- ¹⁵ Quote from an interview with Marc Laidlaw and Bill Van Buren, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁶ Quote from an interview with Marc Laidlaw, Atomic *Half-Life* website, around November 1998.
- ¹⁷ Quote from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁸ All quotes from interview with Erik Johnson, via email, Oct. 21, 2003.
- ¹⁹ Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- ²⁰ Ibid.
- ²¹ Ibid.
- ²² Quote from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ²³ Ibid.
- ²⁴ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Mon. July 12, 2004.
- ²⁵ Quote from an interview with Gabe Newell, date and source unknown.

- 26 Quotes from an interview with Gabe Newell, Valve offices in Seattle, Mon. July 12, 2004.
- 27 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 28 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 29 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 30 Excerpt from GameSlice article, written sometime in 1997: web.archive.org/web/19980121140311/http://www.gameslice.com/preview/half/index.html
- 31 Excerpt from CDmag article, written sometime in 1997: www.cdmag.com/articles/002/139/half_life_first_look.html
- 32 Excerpt from a GameSpot preview, Aug. 24, 1997, www.gamespot.com/pc/action/half-life/preview_2558760.html
- 33 Ibid.
- 34 Portions of this paragraph feature information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 35 Ibid.

CHAPTER 3

- 1 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 2 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 3 All quotes excerpted from an interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
- 4 Ibid.
- 5 Ibid.
- 6 All quotes excerpted from an interview with Marc Laidlaw, Valve offices in Seattle, Wed. July 14, 2004.
- 7 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 8 Ibid.
- 9 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 10 For further information on Freeman Dyson, visit his website at www.sns.ias.edu/~dyson/.
- 11 Quote from an interview with Marc Laidlaw, via email, Wed. July 14, 2004.
- 12 All quotes excerpted from an interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
- 13 Ibid.
- 14 Quote from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 15 All quotes excerpted from an interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
- 16 Ibid.
- 17 Ibid.

CHAPTER 4

- 1 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 2 Ibid.
- 3 Quote excerpt from a GameSpot interview with Ken Birdwell, November 1998; currently unavailable.
- 4 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 5 Quote excerpt from an interview with Yahn Bernier, Oct. 21, 2003.
- 6 All quotes from an interview with Erik Johnson, via email, Oct. 21, 2003.
- 7 Quote from an interview with Erik Johnson, via email. October 21, 2003.
- 8 All quotes excerpted from an interview with Erik Johnson, Valve offices in Seattle, Wed. June 2, 2004.
- 9 Quote excerpt from an interview with Yahn Bernier, Oct. 21, 2003.
- 10 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 11 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 12 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 13 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 14 Excerpt from an interview with John Romero, via email, June 21, 2004.
- 15 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 16 Quote from GameSpot's Preview of *Half-Life: Day One*, date unknown.
- 17 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 18 Ibid.
- 19 Interview with Cliff "CliffyB" Blezinski via email, June 21, 2004.
- 20 Quote from GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 21 Ibid.
- 22 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 23 All quotes from an interview with Gabe Newell, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 24 Ibid.
- 25 Ibid.
- 26 Ibid.
- 27 The section features information originally created for GameSpot's 1998 "The Final Hours of *Half-Life*" feature, www.gamespot.com/features/half-life_final/, reproduced by kind permission of CNET Networks, Inc. All Rights Reserved.
- 28 Quote from Planet *Half-Life* news archives.
- 29 Information courtesy of www.valvesoftware.com
- 30 Quote from an interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
- 31 Ibid.
- 32 All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 33 Ibid.

CHAPTER 5

- ¹ Steven Levy, now the Chief Technology Editor at *Newsweek* (among other gigs), wrote the book in 1984. Although sharing the same name, the 1995 movie starring *Tomb Raider's* Angelina Jolie (and footage from a mock-up *Wip3out*) has no affiliation.
- ² Excerpt from book notes on Steven Levy's website, mosaic.echonyc.com/~steven/index.html.
- ³ Excerpt from "A History of Adventure," www.rickadams.org/adventure/a_history.html.
- ⁴ All quotes in this section from an interview with Doug Lombardi and Jess Cliffe, Valve offices in Seattle, Wed. June 2, 2004.
- ⁵ All quotes in this section from an interview with Jess Cliffe, Valve offices in Seattle, Wed. June 2, 2004.
- ⁶ Ibid.
- ⁷ Excerpt from an interview with Yahn Bernier, via email, September 21, 2003.
- ⁸ Interview with Erik Johnson, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁹ All quotes from an interview with Erik Johnson, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁰ Excerpt from Mod Expo feature, July 29, 1999, at www.3dactionplanet.com/features/articles/playingfield/.
- ¹¹ Read the entire article here: www.3dactionplanet.com/features/articles/playingfield/.
- ¹² Free Advice is available at www.planethalflife.com/features/articles/valve-modfocus/.
- ¹³ Interview with Erik Johnson, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁴ Interview with Sal "Sluggo" Accardo, via email, June 25, 2004.
- ¹⁵ Release dates courtesy of www.planetquake.com/modcentral/mcarchive.htm
- ¹⁶ Interview with Sal "Sluggo" Accardo, via email, June 25, 2004.
- ¹⁷ Ibid.
- ¹⁸ Excerpt from Mod Expo feature, July 29, 1999, at www.3dactionplanet.com/features/articles/playingfield/.
- ¹⁹ Interview with Erik Johnson, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ²⁰ Ibid.
- ²¹ Both quotes Ibid.
- ²² Ibid.
- ²³ Excerpt from an interview with CliffyB via email, June 21, 2004.
- ²⁴ Excerpt from an interview with Warren Spector via email, June 27, 2004.

CHAPTER 6

- ¹ Those wishing to follow in Robin, John, or Ian's footsteps should stride over to the University's official homepage; rmit.edu.au
- ² This motto is correct, at least according to the Wanderers Cricket Club (wanderers.netfirms.com). The *TF* trio weren't part of this club.
- ³ Information and quote courtesy of *teamfortress.com*, "About" feature, circa 2002.
- ⁴ Interview with John Cook, Online Development Manager, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁵ According to the Deathmatch Database for the Victoria area of Australia, last updated Oct. 21, 1997.
- ⁶ A much, much smaller area of Victoria, Australia, famous for its off-road center.
- ⁷ According to the Deathmatch Database for the Victoria area of Australia, last updated Oct. 21, 1997.
- ⁸ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁹ Ibid.
- ¹⁰ Quote from *planetfortress.com* interview with the team, August 1999. planetfortress.com/miscpf/tfbdyinterview.shtml
- ¹¹ Ibid.
- ¹² Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.

- ¹³ Ibid.
- ¹⁴ Quote from *planetfortress.com* interview with the team, August 1999. planetfortress.com/miscpf/tfbdyinterview.shtml
- ¹⁵ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ¹⁶ Ibid.
- ¹⁷ Ibid.
- ¹⁸ Ibid.
- ¹⁹ All quotes *ibid.*
- ²⁰ All quotes *ibid.*
- ²¹ All quotes *ibid.*
- ²² All quotes *ibid.*
- ²³ All quotes *ibid.*
- ²⁴ Ibid.
- ²⁵ Taken from Sierra/Valve's official press release (<http://planethalflife.com/news/archive.asp?month=1&day=13&year=1999>), dated January 13, 1999.
- ²⁶ Ibid.
- ²⁷ Ibid.
- ²⁸ "An application program interface for manipulating and displaying three-dimensional objects. Developed by Microsoft, Direct3D provides programmers with a way to develop 3D programs that can utilize whatever graphics acceleration device is installed in the machine. Virtually all 3-D accelerator cards for PCs support Direct3D." Definition from *webopedia.com*
- ²⁹ All quotes taken from Sierra/Valve's official press release (<http://planethalflife.com/news/archive.asp?month=1&day=13&year=1999>), dated January 13, 1999.
- ³⁰ Snippet from "Q&A with Valve 01/14/99" on *bluesnews.com*
- ³¹ Taken from *Team Fortress Classic* Q&A with Robin Walker, January 1999 (planetfortress.com).
- ³² According to a news story posted on *planetfortress.com*, Sept. 30, 2003.
- ³³ Taken from *Team Fortress Classic* Q&A with Robin Walker, January 1999 (planetfortress.com).
- ³⁴ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ³⁵ Missive between unknown Valve employee and Jenni Gant, published on *Modcentral HL*, April 2, 1999.
- ³⁶ According to Game Nation TV.
- ³⁷ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ³⁸ According to an interview with Robin Walker by NextWish, May 31, 2001 (planethalflife.com).
- ³⁹ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁴⁰ *Planethalflife.com*'s message to the masses, April 7th, 1999, as the first downloads of *TFC* began.
- ⁴¹ Interview with John Cook, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁴² For full details, check the readme file in the game, or visit planetfortress.com/teamfortress/readme.html

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- ¹ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ² According to Cliffe's feature *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
- ³ Ibid.
- ^{3A} Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
- ⁴ Ibid.
- ⁵ *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
- ⁶ According to "About" feature, written by John "Rizzuh" Jensen, csnation.counterstrike.net, 2003.
- ⁷ Interview with Minh, from www.cine-courts.com/cs/itw.htm, Feb. 8, 2001

CHAPTER 8

- ⁸ Interview with Minh, AQ2's Actor's Guild, Developer Area of *telefragged.com*, Feb. 15, 1999.
 - ⁹ Ibid.
 - ¹⁰ *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ¹¹ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ¹² Robin Walker; one of the co-creators of *Team Fortress*.
 - ¹³ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ¹⁴ Ibid.
 - ¹⁵ Ibid.
 - ¹⁶ Ibid.
 - ¹⁷ Ibid.
 - ¹⁸ Quote from CS FAQ on *counter-strike.net* which may be wholly or substantially an untruth.
 - ¹⁹ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ²⁰ Ibid.
 - ²¹ Quote courtesy of HUD on screenshot of first-ever Beta test, *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ²² *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ²³ Ibid.
 - ²⁴ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ²⁵ *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ²⁶ Ibid.
 - ²⁷ This description of MTG furnished by Minh in the CS FAQ on *counter-strike.net*, which may also be wholly or substantially an untruth.
 - ²⁸ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ²⁹ *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ³⁰ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ³¹ Ibid.
 - ³² *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ³³ Interview with Minh, from www.cine-courts.com/cs/itw.htm, Feb. 8, 2001.
 - ³⁴ Excerpt from *Firingsquad.com* interview with Minh, Jan. 25, 2001.
 - ³⁵ According to "About" feature, written by John "Rizzuh" Jensen, csnation.counterstrike.net, 2003.
 - ³⁶ Interview with Minh, from www.cine-courts.com/cs/itw.htm, Feb. 8, 2001.
 - ³⁷ *Counter-Strike, A Retrospective in Pictures: A Comedy of Errors*, June 2000.
 - ³⁸ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ³⁹ Ibid.
 - ⁴⁰ Ibid.
 - ⁴¹ Excerpt from *Firingsquad.com* interview with Minh, Jan. 25, 2001.
 - ⁴² Ibid.
 - ⁴³ Interview with Jess Cliffe, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ⁴⁴ Interview with Doug Lombardi and Jess Cliffe, Valve offices in Seattle, Wed. June 2, 2004.
 - ⁴⁵ Ibid.
 - ⁴⁶ Ibid.
 - ⁴⁷ Interview excerpts from HomeLAN interview, April 17, 2003 www.homelanned.com
 - ⁴⁸ Ibid.
 - ⁴⁹ Interview with Doug Lombardi and Jess Cliffe, Valve offices in Seattle, Wed. June 2, 2004.
 - ⁵⁰ Ibid.
 - ⁵¹ Ibid.
 - ⁵² All quotes in this section from interview with Doug Lombardi and Jess Cliffe, Valve offices in Seattle, Wed. June 2, 2004.
- ¹ Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
 - ² Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ³ Ibid.
 - ⁴ Excerpt from interview with Jakob Jungels, date unknown. www.pcs shooter.com/interviews/dod.html
 - ⁵ Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
 - ⁶ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ⁷ Ibid.
 - ⁸ Ibid.
 - ⁹ Ibid.
 - ¹¹ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ¹² Ibid.
 - ¹³ Ibid.
 - ¹⁴ Ibid.
 - ¹⁵ Ibid.
 - ¹⁶ Ibid.
 - ¹⁷ Ibid.
 - ¹⁸ Ibid.
 - ¹⁹ Ibid.
 - ²⁰ Ibid.
 - ²¹ Ibid.
 - ²² Ibid.
 - ²³ Ibid.
 - ²⁴ Ibid.
 - ²⁵ Ibid.
 - ²⁶ Ibid.
 - ²⁷ Excerpt from interview with Ben Jones, September 29, 2001, www.homelanned.com
 - ²⁸ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ²⁹ Ibid.
 - ³⁰ Excerpt from interview with John Morello II, July 6, 2002, www.homelanned.com
 - ³¹ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ³² Excerpt from interview with Jakob Jungels, date unknown. www.pcs shooter.com/interviews/dod.html
 - ³³ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ³⁴ Ibid.
 - ³⁵ Ibid.
 - ³⁶ Ibid.
 - ³⁷ Ibid.
 - ³⁸ Ibid.
 - ³⁹ Ibid.
 - ⁴⁰ Ibid.
 - ⁴¹ Ibid.
 - ⁴² Excerpt from interview with Jakob Jungels, date unknown. www.pcs shooter.com/interviews/dod.html
 - ⁴³ Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
 - ⁴⁴ Ibid.
 - ⁴⁵ Ibid.
 - ⁴⁶ Excerpt from interview with John Morello II, July 6, 2002,

www.homelanfed.com

- 47 Excerpt from interview with John Morello II, April 30, 2003, www.homelanfed.com
- 48 Excerpt from interview with John Morello II, July 6, 2002, www.homelanfed.com
- 49 Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
- 50 Excerpt from interview with John Morello II, July 6, 2002, www.homelanfed.com
- 51 Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
- 52 Excerpt from interview with John Morello II, July 6, 2002, www.homelanfed.com
- 53 According to the excited chatter intercepted from www.dayofdefeatmod.com/news.php
- 54 "LOS! LOS! LOS!" in this instance means "Go! Go! Go!"
- 55 Excerpt from interview with John Morello II, April 30, 2003, www.homelanfed.com
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- 57 Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
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- 59 Excerpt from interview with John Morello II, April 30, 2003, www.homelanfed.com
- 60 Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
- 61 Ibid.
- 62 Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.
- 63 Ibid.
- 64 Excerpt from team interview for *Day of Defeat: Prima's Official Strategy Guide*, June 2003.
- 65 Interview with Jakob Jungels, John Morello II, and Kelly Thornton, Valve offices in Seattle, Wed. Sept. 3, 2003.

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- 1 Quote from interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
- 2 Excerpt from IGNPC interview with Herb Flower, November 21, 2000. pc.ign.com/articles/088/088146p1.html
- 3 Excerpts from article written by Sal Accardo, July, 291999. www.3dactionplanet.com/features/articles/playingfield/index2.shtml
- 4 Excerpt from GameSpy interview with Herb Flower, October 2000. archive.gamespy.com/interviews/october00/herbflower/index2.shtml
- 5 Excerpt from IGNPC interview with Herb Flower, November 21, 2000. pc.ign.com/articles/088/088146p1.html
- 6 Quote from interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
- 7 Excerpt from *Gunman Chronicles*, www.cdmag.com/articles/031/062/gunmanchro-r.html
- 8 Quote from interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
- 9 Ibid.
- 10 Ibid.
- 11 Both quotes from interview with Christopher McArthur, October 6, 2000. www.3dactionplanet.com/gunman/features/interviews/20001006_ilian/index.shtml
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- 1 All quotes from interviewed with named individuals conducted between September 6–16, 2003.
- 2 Quote courtesy of GameSpy; read the entire article here: archive.gamespy.com/articles/june01/hlmod1. www.bluesnews.com/guide/ctf.htm.
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CHAPTER 11

- 1 Not to be confused with the anime *Shoujo Kakumei Utena*.
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- 5 Excerpt from official Sierra press release, February 12, 1999. games.sierra.com/games/Half-Life/official-releases.html.
- 6 Quote from interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
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- 8 Quote from interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
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[numbers reset after inserted text from ch 12]

- 1 Not to be confused with the anime *Shoujo Kakumei Utena*.
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- 5 Excerpt from official Sierra press release, February 12, 1999. games.sierra.com/games/Half-Life/official-releases.html.
- 6 Quote from interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
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- 8 Quote from interview with Doug Lombardi, Valve offices in Bellevue, Wed. June 2, 2004.

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- ¹³ Excerpt from press release located at hlopposingforce.sierra.com/news.html.
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- ²⁰ Ibid.
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- ²² Excerpt from interview with Landon Montgomery August 26, 1999, www.firingsquad.com/games/opforinterview.asp.
- ²³ Ibid.
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- ⁴³ Ibid.
- ⁴⁴ Ibid.
- ⁴⁵ Point your browser here for a wide selection of fan fiction: www.forumplanet.com/planethalflife/forum.asp?fid=1891 or: www.halflife2.net/forums/forumdisplay.php?f=52.
- ⁴⁶ Interview with Doug Lombardi, Valve offices in Seattle, Wed. June 2, 2004.
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- ² Consult the detailed *Gamasutra* article, entitled "The Cabal: Valve's Design Process For Creating *Half-Life*" for another view of Valve's inner workings. Ken's quotes are from this article; www.gamasutra.com/features/19991210/birdwell_phv.htm
- ³ All quotes from interview with Doug Lombardi, Valve offices in Bellevue, Wed. June 2, 2004.

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- ¹ Quote by Marc Laidlaw, via email interviews, July 16, 2004.
- ² Slideshow courtesy of Marc Laidlaw, via email interviews, Fri. July 16, 2004.
- ³ Quotes from an interview with Gabe Newell, Valve offices in Seattle, Mon. July 12, 2004.
- ⁴ Ibid.
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- ¹⁵ All quotes from an interview with Marc Laidlaw, Valve offices in Seattle, Wed. June 2, 2004.
- ¹⁶ Ibid.
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CHAPTER 14

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- ¹³ Ibid.
- ¹⁴ Police codes courtesy of Kelly Bailey, Valve Software, via email Mon. July 5, 2004.
- ¹⁵ All quotes from an interview with Ted Backman, Valve offices in Bellevue, Wed. Sept. 3, 2003.
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- ²⁶ Mike's hobbies courtesy of www.valvesoftware.com/people.php.
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- ⁵² All quotes from an interview with Harry S. Robins, via email, Wed. July 14, 2004.
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CHAPTER 16

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- ³ Quote from an interview with Gabe Newell, Valve offices in Bellevue, Mon. July 12, 2004.
- ⁴ Quote from an interview with Ted Backman, Valve offices in Bellevue, Wed. Sept. 3, 2003.
- ⁵ All quotes excerpted from an interview with Steve Bond, John Guthrie, and Dario Casali, Valve offices in Bellevue, Wed. Sept. 3, 2003.
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- ⁷ Ibid.
- ⁸ Ibid.
- ⁹ Quote from an interview with Doug Lombardi, Valve offices in Bellevue, Wed. June 2, 2004.
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- ¹³ Ibid.
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- ¹⁵ Ibid.
- ¹⁶ Ibid.
- ¹⁷ Definition courtesy of www.pestpatrol.com.
- ¹⁸ Quote from an interview with Gabe Newell, Valve offices in Bellevue, Mon. July 12, 2004.
- ¹⁹ All quotes from an interview with Doug Lombardi and Jess Cliffe, Valve offices in Bellevue, Wed. June 2, 2004.
- ²⁰ Quotes from an interview with Gabe Newell, Valve offices in Bellevue, Mon. July 12, 2004.
- ²¹ Ibid.
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- ³³ Quote from an interview with Warren Spector, via email, Tues. June 29, 2004.
- ³⁴ Quote from an interview with Cliff "CliffyB" Bleszinski, via email, Mon. June

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- ³⁵ Quote from an interview with Marc Laidlaw, via email, Wed. July 14, 2004.
- ³⁶ Quotes from an interview with Gabe Newell, Valve offices in Bellevue, Mon. July 12, 2004.
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- ⁴² All quotes from an interview with Viktor Antonov and Bill Van Buren, Valve offices in Bellevue, Wed. Sept. 3, 2003.
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- ⁴⁴ Ibid.
- ⁴⁵ Ibid.
- ⁴⁶ Ibid.
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- ⁴⁸ Quote from an interview with Warren Spector, via email, Tues. June 29, 2004.
- ⁴⁹ Quotes from an interview with Gabe Newell, Valve offices in Bellevue, Mon. July 12, 2004.

1. The first step in the process of the scientific method is to ask a question.	1. The first step in the process of the scientific method is to ask a question.
2. The second step is to do background research.	2. The second step is to do background research.
3. The third step is to form a hypothesis.	3. The third step is to form a hypothesis.
4. The fourth step is to test the hypothesis.	4. The fourth step is to test the hypothesis.
5. The fifth step is to analyze the data.	5. The fifth step is to analyze the data.
6. The sixth step is to draw a conclusion.	6. The sixth step is to draw a conclusion.
7. The seventh step is to communicate the results.	7. The seventh step is to communicate the results.
8. The eighth step is to repeat the experiment.	8. The eighth step is to repeat the experiment.
9. The ninth step is to publish the results.	9. The ninth step is to publish the results.
10. The tenth step is to review the results.	10. The tenth step is to review the results.
11. The eleventh step is to discuss the results.	11. The eleventh step is to discuss the results.
12. The twelfth step is to conclude the experiment.	12. The twelfth step is to conclude the experiment.
13. The thirteenth step is to write a report.	13. The thirteenth step is to write a report.
14. The fourteenth step is to present the results.	14. The fourteenth step is to present the results.
15. The fifteenth step is to answer the question.	15. The fifteenth step is to answer the question.
16. The sixteenth step is to evaluate the results.	16. The sixteenth step is to evaluate the results.
17. The seventeenth step is to compare the results.	17. The seventeenth step is to compare the results.
18. The eighteenth step is to identify the variables.	18. The eighteenth step is to identify the variables.
19. The nineteenth step is to control the experiment.	19. The nineteenth step is to control the experiment.
20. The twentieth step is to record the data.	20. The twentieth step is to record the data.
21. The twenty-first step is to graph the data.	21. The twenty-first step is to graph the data.
22. The twenty-second step is to interpret the data.	22. The twenty-second step is to interpret the data.
23. The twenty-third step is to make a prediction.	23. The twenty-third step is to make a prediction.
24. The twenty-fourth step is to test the prediction.	24. The twenty-fourth step is to test the prediction.
25. The twenty-fifth step is to analyze the results.	25. The twenty-fifth step is to analyze the results.
26. The twenty-sixth step is to draw a conclusion.	26. The twenty-sixth step is to draw a conclusion.
27. The twenty-seventh step is to communicate the results.	27. The twenty-seventh step is to communicate the results.
28. The twenty-eighth step is to repeat the experiment.	28. The twenty-eighth step is to repeat the experiment.
29. The twenty-ninth step is to publish the results.	29. The twenty-ninth step is to publish the results.
30. The thirtieth step is to review the results.	30. The thirtieth step is to review the results.
31. The thirty-first step is to discuss the results.	31. The thirty-first step is to discuss the results.
32. The thirty-second step is to conclude the experiment.	32. The thirty-second step is to conclude the experiment.
33. The thirty-third step is to write a report.	33. The thirty-third step is to write a report.
34. The thirty-fourth step is to present the results.	34. The thirty-fourth step is to present the results.
35. The thirty-fifth step is to answer the question.	35. The thirty-fifth step is to answer the question.
36. The thirty-sixth step is to evaluate the results.	36. The thirty-sixth step is to evaluate the results.
37. The thirty-seventh step is to compare the results.	37. The thirty-seventh step is to compare the results.
38. The thirty-eighth step is to identify the variables.	38. The thirty-eighth step is to identify the variables.
39. The thirty-ninth step is to control the experiment.	39. The thirty-ninth step is to control the experiment.
40. The fortieth step is to record the data.	40. The fortieth step is to record the data.
41. The forty-first step is to graph the data.	41. The forty-first step is to graph the data.
42. The forty-second step is to interpret the data.	42. The forty-second step is to interpret the data.
43. The forty-third step is to make a prediction.	43. The forty-third step is to make a prediction.
44. The forty-fourth step is to test the prediction.	44. The forty-fourth step is to test the prediction.
45. The forty-fifth step is to analyze the results.	45. The forty-fifth step is to analyze the results.
46. The forty-sixth step is to draw a conclusion.	46. The forty-sixth step is to draw a conclusion.
47. The forty-seventh step is to communicate the results.	47. The forty-seventh step is to communicate the results.
48. The forty-eighth step is to repeat the experiment.	48. The forty-eighth step is to repeat the experiment.
49. The forty-ninth step is to publish the results.	49. The forty-ninth step is to publish the results.
50. The fiftieth step is to review the results.	50. The fiftieth step is to review the results.

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